University of Alberta

The Consumption of Science and Technology: Canadian Atomic Culture during the Cold War

by

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Canada

Abstract

This is a study of Canadian Atomic Culture during the 1950s, indicating the global impact of the Cold War on civilians, the presence of science and technology in Canadian postwar society, and the role of Cold War ambiguities on the civilian mindset. The thesis is broken into three chapters which examine the coexisting positive and negative views of science in society during the 1950s, the mixed messages regarding protection against a nuclear attack, and the process of a civil defence exercise (Calgary's 1955 Operation "Lifesaver"). By moving from the macro global and political perspective to the micro domestic and personal perspective, this study demonstrates the awareness among civilians regarding nuclear war. Canada is used as a Cold War nation in this study not because of its military component but on the basis of its geographical location between the two superpowers and how this affected the civilian perspectives and expectations for nuclear war. Canadian Atomic Culture, through the civilian's mixed understanding of science and technology in society, defined the Cold War experience.

Acknowledgments

To assume that this thesis was driven merely by my own brilliance would be presumptuous and incorrect. I have many people to thank. I will begin with my supervisors, Dr. Andrew Ede and Dr. Erika Dyck. Their expertise, constant editing, and seemingly endless pool of resources and encouragement made these two years much easier than they could have been. I could not have had a better combination of professors as their combined interests and areas of study greatly influenced this thesis. To say that I enjoyed working with them would be a massive understatement as they are both talented scholars devoted to their fields. I also have to thank the committee of the defence for their insightful comments and suggestions for the thesis and for further research.

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This thesis has not just been fueled by academic and historical institutions but by a variety of other factors. These acknowledgements would be incomplete without the mention of the crew at F-62. They not only put up with my incessant and often one-sided discussions regarding Canadian Atomic Culture but provided valuable insight and information, ranging from climate change and wheat growth, to ethereal vocabulary and poetry, to national space programs and politics. I also have to thank the friends that I have made at the university over the past couple of years, as well as those who have persisted throughout. They are invaluable individuals who know who they are. The support I received through their lunches, dinners, and potlucks, their letters, phone calls, and visits, their editing, entertainment, and antidotes for anxiety, their discussions of philosophy, psychology, and literature, I will never forget. I particularly have to thank them for the food because without their help I would have neglected it entirely.

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Introduction

On April 1, 1950, the popular Canadian magazine *Maclean's* featured an editorial entitled "Too Many Babes in Toyland."[1] Illustrated by a photograph of two young boys examining toy atomic bombs, the article expressed concerns for society's apparently *laissez-fair* attitude towards nuclear war. This display of the world's deadliest weapon in the form of a child's toy suggested a worrisome presence of the bomb in society as well as a degree of civilian apathy towards the possibility of an atomic attack.

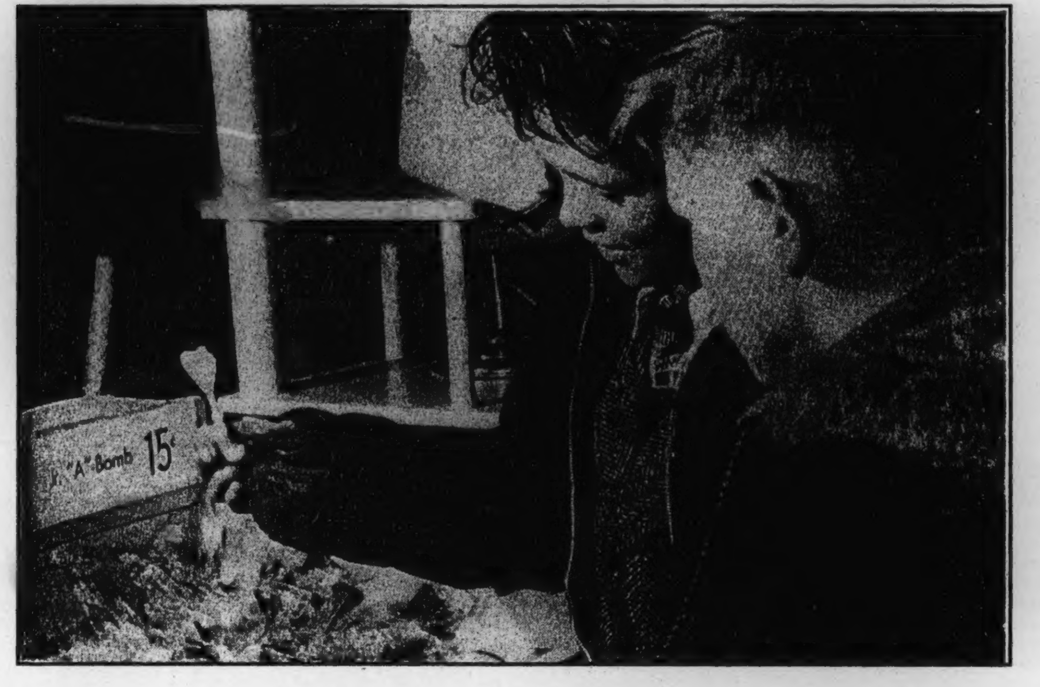

Fig. 1[2]

The article began with the following statement: "The most maddening thing about this picture is that it doesn't makes us mad as it should."[3] Written in the first decade of the

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[1] "Too Many Babes in Toyland" *Maclean's*, April 1, 1950, 1.
[2] Ibid. Photograph by Ken Bell.
[3] Ibid.

Cold War the editorial captured the anxieties associated with the nuclear bomb, the progression of science, and the effects of the two on society.

The article went on to note that because of this blatant effort to domesticate and pacify the bomb, very few civilians were prepared to understand or at least regard the direction in which society was heading:

> Who's the more slovenly citizen: Young Stinky Jones playing soldiers with his 'A-Bomb of 15 cents' or Stinky's father playing ostrich with the real bomb – numbing his mind to the greatest peril in the history of the human race …[4]

During the 1950s Canadian civilians experienced a variety of exposures to science and technology in society which resulted in a number of responses ranging from apathy to enthusiasm to fear. The toy atomic bomb captured the ambiguous presence of science and technology in society: here was a military weapon in the hands of a child indicating both a militarization of the child's world and a domestication of the bomb. In the form of a toy the bomb was both a menacing and gentle figure. The editorial, throughout its critique of the public's lack of concern for the increasing presence of the nuclear bomb in a non-military culture, was illustrative of Canadian's mixed feelings towards science and technology in society and how this mentality captured the ambiguous nature of the early Cold War.

During the Cold War, the civilian's understanding of science in society changed. In many ways scientific experiments, particularly in the form of nuclear tests, rocket launches, and the world's first satellites, were participatory events which were available for public viewing. Working into all facets of society, such as the military, the domestic world, and the nuclear family, science and technology took on a variety of forms. 1950s popular culture (such as novels, magazines, and children's activities) revealed civilians' divided impressions towards science in society and how these notions were altered and manipulated by the government, scientific programs, and civil defence organizations. Seen by civilians, world leaders, and scientists as a mixture of military strength, technological innovation, and a threat to humanity, science and technology played an elusive and often contradictory role in Cold War society. Found in the forms of weapons, household items, medical devices, and popular entertainment, the varying forms of science and technology were inescapable factors which alternatively entertained and frightened civilians. Canadian Atomic Culture and the government's mixed messages to civilians regarding science and technology in society and embodied the nature of Cold War ambiguities and politics. Even though scholars have not focussed on the Canadian Cold War experience in terms of Atomic Culture, a wealth of primary sources from this period suggests that the popularization of the bomb was a prevalent factor of 1950s Canada.

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[4] Ibid.

Atomic Culture

Atomic Culture is a term generally used to describe American popular culture surrounding the nuclear tests in the desert of the Southwestern states. Atomic Culture celebrated the nuclear bomb and scientific process through fads like beauty contests, fashions, drinks such as the "atomic cocktail," dances, and comic book heroes. Civilians during the Atomic Era[5], or the 1950s, viewed the mushroom cloud as a symbol of power, prosperity, and a feat of modern scientific knowledge. This optimistic view of nuclear innovation, however, also stimulated fears and anxiety about the destructive capacity associated with scientific technology. The popularization of the nuclear bomb, and the mixed enthusiasm and fear associated with postwar physics are not generally recognized as a Canadian Cold War experience, except in terms of American cultural influence. Historians have typically cast Canada as a middle power that never produced a nuclear bomb despite having the financial and technological capability to do so.[6] Contributing to this marginal status, historians have also portrayed Canada as the dependent northern partner of the United States during the Cold War.[7]

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[5] The era of Atomic Culture ran from 1945 to 1962. In the global context this period began with the Gouzenko Affair when Igor Gouzenko, a Russian cipher clerk working in Ottawa, exposed the first North American Soviet spy ring in September 1945. The period ended with the Cuban Missile Crisis, in October 1962, when the Cold War superpowers entered an uneasy military understanding after their first nuclear "close-call." In the

Nevertheless, Canadian historians have recognized Canada's significant role in the Cold War. Historians have portrayed the nation as a catalyst between East and West when Igor Gouzenko defected from the Soviet Union in 1945, and have acknowledged the importance of the Avro Arrow and BOMARC (Boeing & Michigan Aeronautical Research Centre) on Canadian nationalism. The Cold War played a significant role in Canadian history in part through its direct participation in the militarization of the West.

Canadian context the period opened to the postwar years beginning under Prime Minister Louis St. Laurent (1948-1957) and closed with Prime Minister John Diefenbaker (1957-1963).

[6] One of the exceptions to this point of view is the work of Canadian military historian John Clearwater who has studied Canadian nuclear weapons during the Cold War (although often later than this study's era). Another example would be historian Sean Maloney who has recently published a book which presumably looks at Canadian weapons during the 1950s and 1960s, *Learning to Love the Bomb: Canada's Nuclear Weapons during the Cold War* (Washington, D.C.: Potomac Books, 2007).

[7] A primary example of this neglect to mention Canada in the context of the Cold War on a global scale is John Gaddis's book *The Cold War: A New History* (2005). Although this book offered great insight into international relations during the Cold War, there was absolutely no mention of Canada, not as an ally of the United States during the Korean War (1950-1953), nor as a mediator during the Suez Crisis (1956-1957), or even as the area of land between the two superpowers.

Beginning with the Manhattan Project during World War II, Canada contributed to the American efforts to construct the atomic bomb, providing scientists and uranium. Between 1950 and 1953 Canada sent 26,803 troops to fight in the Korean War and an additional 7,000 to work with the United Nations after the war in 1954.[8] The Canadian government and military sent delegates to observe the American nuclear tests in the South Pacific and soldiers to practice field tests in atomic warfare conditions in the Nevada desert alongside American soldiers.[9] Canadians mined and exported uranium from the Northwest Territories and northern Ontario, and helped produce the series of early warning systems designed to protect North America against Soviet attack. The Canadian government even commissioned the construction of the "Diefenbunker," a "huge, self sufficient, shock-resistant, reinforced, radiation-proof underground complex with an elaborate protected communications network" built for government officials.[10]

Despite this recognition of Canada's participation in the Cold War, historians tend to dismiss the role of science and technology in shaping 1950s Canadian society. The elusive nature of Canada's Atomic Culture can be attributed to historians disregarding both the Canadian technological contributions to the Cold War and the ubiquitous presence of science in Canadian society during this decade. By examining science and technology during the 1950s, it becomes clear that Canada's post World War II history developed an Atomic Culture.

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[8] Richard W. Pound ed, *Fitzhenry and Whiteside Book of Canadian Facts and Dates* (Markham: Fitzhenry and Whiteside Limited, 2005), 465.
[9] (No Author), "A Grim Legacy," *Maclean's*, January 1994, 10-12.
[10] Bill Manning, "Beyond the Diefenbunker: Canada's Forgotten 'Little Bunkers,'" *Material History Review* 57, (Spring 2003): 79.

A study of Canadian Atomic Culture offers understanding of the presence of science and technology in society. To underscore the sense of ambiguity manifested in the Canadian Cold War experience it is important to look at the role of technology in civilization, the nature of civil defence protection, and the construction of social norms in mid-twentieth century society. Primary sources, like the 1950 *Maclean's* editorial "Too Many Babes in Toyland," indicated that science was prominent in the Canadian cultural consciousness during the Atomic Era. Magazines like *Maclean's* were published for the average citizen and read by individuals from school children to housewives. The women's magazine *Chatelaine* also provided readers with many articles regarding science in the nuclear age, such as "Let's Not Guess About Fallout" (August 1959) and "We Need More Women Scientists" (April 1959). In its 1950 debut issue, *Chatelaine* opened with the telling article "What's the Biggest Thing in Our New Half Century?" The article noted the important place of the nuclear bomb and the associated fears in Canadian society during the postwar years. Byrne Hope Sanders's editorial explained that

> … in a recent editorial staff meeting to debate this question 'the argument stopped by sudden consent, for we all recognized what it was: the Atom Bomb. Around the table faces grew sombre as each of us built on the theme of fear.[11]

The atomic bomb was a source of social controversy and was widely discussed by editors, politicians, and civilians. Sources like *Maclean's* and *Chatelaine* indicated the widespread Canadian familiarity with aspects of modern science and technology in a variety of social spheres including the military, the school, and the home.

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[11] Richard Cavell, "Introduction: The Cultural Production of Canada's Cold War" in *Love, Hate, and Fear in Canada's Cold War* (Toronto: University of Toronto Press, 2004), 165.

The Atomic Era was also indicative of the complications related to the course of a war which never reached a climatic military confrontation between opponents but which was built instead by proxy wars and ideological differences. Although the United States and the Soviet Union, as the Cold War superpowers, had the most prevalent roles in the international relations of the era, they were by no means the only participants. Because of the rapid rate of postwar military innovation and the ever increasing power of weaponry, the threat of a future nuclear conflict involved the entire globe. Canada, as a middle power and as the nation situated geographically between the two superpowers, reflected the larger concerns of the Cold War through a domestic level.

History

The editorial “Too Many Babes in Toyland” expressed the inescapable presence of the atomic bomb in Canadian society. The article demonstrated this through the physical presence of the bomb in the child’s world and it illustrated the coexistence of positive and negative interpretations of the nuclear bomb in society. In the case of the “A-Bomb” toys, the boys featured in the article were not only exposed to a gentle and harmless version of the bomb but were subsequently in danger of not taking the bomb’s threat seriously. North American civilians during the Atomic Era experienced a profound shift in the western view of the nuclear bomb from one of American power and security, in 1945, to one of military threat, following the explosion of the first Russian bomb in 1949.

Nuclear strategy also changed when the Americans developed the first hydrogen bomb (or fusion bomb) in 1952. Both the American and Soviet governments had tried to reassure the public about nuclear weapons by presenting the atomic bomb’s peaceful potential in terms of atomic (or fission) energy. The hydrogen bomb did not appear to have any of these attributes and was apparently conceived solely for the destruction of an opponent.[12] An article in *Scientific American* from 1950 expressed these concerns related to the construction of a nuclear bomb through a brief presentation of the facts related to the fusion bomb:

> First, it can be made.
> Second, there is no limit, in principle, to the size of a fusion bomb.
> … Third, while fission can be controlled in an orderly way to produce useful power in a reactor, the fusion reaction offers no prospect at the present time of any use except in terms of an explosion.[13]

One of the major differences between the atomic bomb and the hydrogen bomb lay in the materials used and the method of splitting the molecules of the explosive isotopes.[14] In terms of the atomic bomb, scientific methodology was a lesser issue than funding and the availability of pure elements. Whereas the fission bomb was contingent on the relatively scarce uranium 235, the fusion bomb, although using the fission process to initialize the nuclear reaction, often used synthetically prepared elements like plutonium.[15] The availability of resources was not as much of a concern for builders of the hydrogen bomb as this had been more or less solved by the earlier work on fission weapons. In addition to the development of fission and fusion bombs, the cheap manufacturing of nuclear weaponry was another important element to the nuclear world.[16] What began as a secret weapon of the United States in 1945 ultimately grew to be a standard weapon by 1962 in the efforts of the opposing superpowers to defend themselves against one another.[17]

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[12] Louis N. Ridenour, "The Hydrogen Bomb: Presenting an account of the theoretical background of the weapon and a discussion of some questions it has raised in regard to our present policy of security," *Scientific American* 182, no. 3, March 1950, 13.
[13] Ibid.
[14] The atomic bomb, which in its earliest state was a thousand times more powerful than the conventional bombs of the same size, was created by nuclear fission and the splitting of uranium (U235) and the synthetically prepared substance plutonium (Pu239) which resulted in a release of vast amounts of energy in manners of blast, light, heat, and other forms of radiation. Nuclear fusion was used for thermonuclear or hydrogen weapons. Atomic explosives were used as triggers for the fusion process, which was executed through the combination of heavy isotopes of hydrogen into heavier helium atoms. The fusion bomb was a thousand times more powerful than similar sized fission bombs, making its explosion a million times more powerful than that of conventional explosives. Throughout the Cold War scientists further developed the nuclear bomb into entities such as the Neutron bomb which enhanced radiation and reduced blast, which made it more damaging for the opponent but not for the troops to make their way through the attack area. Karl P. Mueller, PhD., "Strategic Airpower and Nuclear Strategy: The New Theory of a Not-Quite-So-New Apocalypse," in *The Paths of Heaven: The Evolution of Airpower Theory*, ed. Col. Phillip S. Meilinger (Maxwell Air Force Base, Alabama: Air University Press, 1997), 281-2.

The nuclear bomb was a central feature of Atomic Culture. From civilians' mixed opinions of the bomb's existence grew the mentality of "Us versus Them," which divided society into the "known and accepted" and the "unknown and dangerous." This mentality was important to Atomic Culture because it redefined the ideological war between superpowers: the West was "good" and the East was "bad;" capitalism was a friend and communism a foe. Ambiguous conceptions of science complicated this situation and these divisions – scientists had produced a higher quality of life for the industrialised world, but simultaneously made possible nuclear holocaust.

The geographical location of Canada contributed to the civilian's expectation for nuclear war. Should a nuclear war ever occur Canada, being the nation situated directly between the two superpowers, would presumably be the "no-man's-land." Based on this likelihood, the Canadian and American governments collaborated to construct early warning systems across Canada, in an effort to detect enemy bombers heading from

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[15] Christopher Bellamy, "Nuclear Weapons," in *The Oxford Companion to Military History*, ed. Richard Holmes (Oxford: Oxford University Press, 2001), 665.
[16] Mandelbaum, *The Nuclear Future* (Ithaca and London: Cornell University Press, 1983), 45.
[17] Mandelbaum, 44.

Russia to the United States. These systems consisted of the Pinetree Line (1951), the Distance Early Warning Line (the DEW Line) (1954), and the Mid-Canada Line (1955). The warning systems indicated the joint participation of the Canadian and American militaries to safeguard North America against Soviet attack.[18] The first system, the Pinetree Line, was set up primarily along the forty-ninth parallel, reaching up to the southern part of Baffin Island, and it consisted of forty-four stations by its completion.[19] The system's construction began shortly after the initial Soviet nuclear test, revealing the priority of Canadian protection through air defence and early warning detection.[20] The Mid-Canada Line, also called the "McGill Fence,"[21] was built along the fifty-fifth parallel and consisted of ninety-eight stations by its completion in 1957.[22] Whereas the other early warning systems were primarily Canadian projects, the DEW Line was funded entirely by the American military. Starting in 1954, the construction of the DEW Line stretched along the Arctic coast from Alaska to Baffin Island and consisted of twenty-two stations by its completion in 1957.[23]

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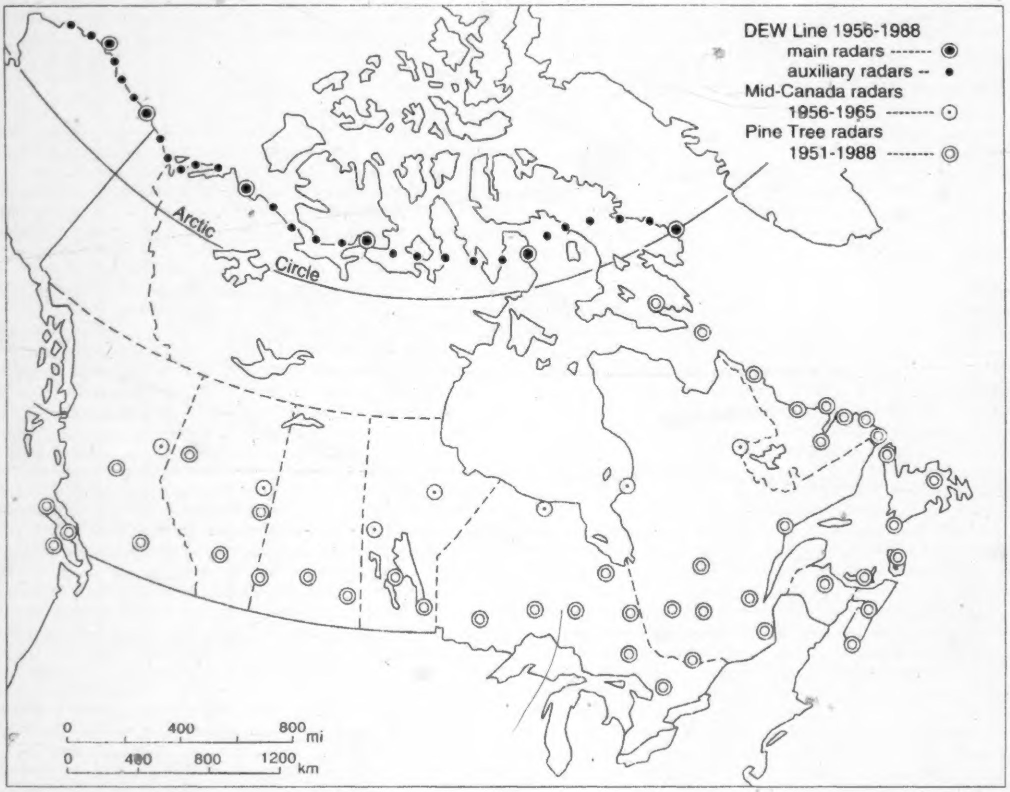
[18] Canada's army, already one of the stronger military forces left over from World War II, expanded from 47,000 troops in 1950 to 104,000 troops in 1953. The military budget during this time increased ten fold to $1.9 billion annually. Mark Zuehlke and C. Stuart Daniel, *The Canadian Military Atlas: The Nation's Battlefields from the French and Indian Wars to Kosovo* (Toronto: Stoddart Publishing Co. Limited, 2001), 190.
[19] Ibid.
[20] Ibid.
[21] Pound, *Canadian Facts and Dates*, 469.
[22] Zuehlke and Daniel, *The Canadian Military Atlas*, 191.
[23] Ibid.


DEW Line 1956-1988
main radars ------- ◉
auxiliary radars -- •
Mid-Canada radars
1956-1965 -------- ⊙
Pine Tree radars
1951-1988 -------- ◎
Arctic Circle
0 400 800 mi
0 400 800 1200 km

NORAD RADAR LINES, 1951–1988

Fig. 2 [24]

The construction of the warning lines posed a number of concerns for Canadians. Arctic sovereignty was an issue as much of the country's northern region, being largely uninhabitable, had unclear boarders which, being mostly made of ice, constantly shifted. The Arctic was the region that joined the Soviet Union and North America together geographically. Peter Kulchyski and Frank James Tester, in their study of Inuit relocation in the Arctic during the mid-twentieth century, discussed the impact of the Cold War on Arctic sovereignty:

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[24] Ibid.

> … [I]n 1949, the detonation of an atomic bomb by the Soviet Union changed the tone and direction of the cold war. Once again, the Arctic became a source of concern. American military personnel were convinced that the threat to North America now lay in Soviet bombers armed with nuclear weapons launching an attack on North America via polar routes.[25]

Sovereignty was also related to Canadian nationalism which was becoming increasingly threatened by American culture. Following the Second World War, Canada found itself more closely related to the United States than ever before. American culture was increasingly popular for Canadians as consumers of television, rock n' roll, and Hollywood. Despite the popular cultural imperialism many Canadians feared that the construction of the American military bases in the north was a far more serious threat to Canadian independence.[26]

The most important concern of Canadians to this thesis, was the impact of science and technology on society in the form of rapid military innovation.[27] The DEW Line was built in 1954, a time in which nuclear bombs could be delivered by bomber. The warning system, designed to give the American military time to prepare and respond to a Soviet attack, would theoretically also allow Canadian civilians time to prepare themselves. By the time of the DEW Line's completion in 1957, however, the Soviet Union had developed the Intercontinental Ballistic Missile (ICBM). Like the bomber, this weapon could be detected by the warning lines but unlike the bomber the ICBM, the first missile capable of reaching targets between continents, travelled at such a fast rate that it would take far less time for the missile to reach its target, thus reducing the warning time from hours to minutes.[28] The DEW Line, three years after its construction, was made virtually useless by the rapid rate of technological development. Canadians were not only threatened by the potential damages wreaked by the Soviet Union, but the retaliations of the United States in response to a Soviet attack. The threat, therefore, was not solely a specific political enemy, such as the Soviet Union, but was far more complex. The threat was related to the rapid development of military weaponry in the nuclear age. The confusion of the actual Cold War enemy, a nation state or a military weapon, explained the government's categorization of individuals and activities into "Us" and "Them," reflecting the accepted and condemned ideologies of the Atomic Era.

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[25] Frank James Tester and Peter Kulchyski, *Tammarniit (Mistakes): Inuit Relocation in the Eastern Arctic, 1939-63* (Vancouver: UBC Press, 1994), 118.

[26] This fear of American control on Canadian soil was expressed in such articles as Ralph Allen's "Will the DEW Line Cost Canada its Northland?" *Maclean's* 69, May 26, 1956.

[27] Historian Michael Mandelbaum illustrated the difficulties of military innovation and planning during the nuclear revolution with a quotation from economist and strategic thinker Thomas C. Schelling: "'To compress a catastrophic war within the span of time that a man can stay awake … drastically changes the politics of war, the process of decision, the possibility of central control and restraint, the motivations of the people in charge, and the capacity to think and reflect while war is in progress." Michael Mandelbaum, *The Nuclear Future* (Ithica and London: Cornell University Press, 1983), 23.

In an effort to maintain control of civilian reactions to and impressions of the Cold War, the Canadian government and civil defence organizations attempted to instil in the population a sense of ordered panic. Sociologist Jackie Orr, in her book *The Panic Diaries*, examined the impact of panic on society first in reference to Orson Wells's 1938 broadcast of *War of the Worlds* and later in reference to civil defence and the Cold War.[29] She discussed the impact of "suggestion" on public panic, how this could, through the proper application of authoritative management, control the public's reaction to a stimulus. Orr referred to the mental psychology of the crowd as "the group mind" which was a unified and homogenized mentality. Orr posed a number of questions in her effort to define the inner working of "group panic":

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[28] Robert L. O'Connell. *Of Arms and Men: A History of War, Weapons, and Aggression.* (New York and Oxford: Oxford University Press, 1989), 300.
[29] Jackie Orr, *Panic Diaries: A Genealogy of Panic Disorder* (Durham and London: Duke University Press, 2006), 38.

> … can the power of suggestion not only create the social group but also annihilate it? Does a group in panic mark the limit of the effect of suggestion's blinding social force? … can the social do away with itself in one of its most powerful acts of sociality? And finally, for the aspiring social scientist, can the very phenomenon that makes this inquiry a scientific endeavour – the causal force of suggestibility – simultaneously destroy the social object that it founds and makes possible?[30]

Orr's analysis of "group panic" is particularly relevant to the study of Cold War culture as the majority of civilian anxieties were managed by the government and related authorities.

Through this kind of controlled anxiety, authorities and policy planners used fear to discourage public apathy about atomic issues. During the 1950s, a general disinterest towards the Cold War, international relations, and possible future dangers led to the constant promotion of anxiety and fear by the government and civil defence organizations. While magazines featured cheerful ads depicting happy homes of a wealthy era, articles also presented the possible horrors of a future of world-wide communism, of mutations resulting from nuclear radiation, and of destroyed civilizations. On a smaller scale, articles, like that found in the April 1950 edition of *Maclean's*, expressed a concern for a future generation which accepted the world's most dangerous weapon in the form of a child's toy. In theory, apathetic civilians would be unprepared for disaster and, in the event of an attack, would contribute to panic and mayhem rather than to social control and order. According to articles like "Too Many Babes in Toyland," apathy would also result in a lack of support for the government and nation state. During the 1950s the Canadian government used the threat of war to control the population. The Canadian government's efforts to achieve a level of ordered panic in society relied, in part, on disseminating images of science and technology with conflicting messages of both their tremendous constructive and destructive powers.[31]

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[30] Orr, 43-4.

As consumers, civilians played an important role in the development of this culture of controlled anxiety. One of the government's primary methods to win the public's support for the bomb and civil defence programs was to transform the image of the bomb into a commodity. In Canada, the process of these efforts typically celebrated the culture of the individual and suburbia. One of the examples which illustrated the government and civil defence organisations' attempts to familiarize Canadians with an element of controlled anxiety was the evacuation exercise Operation "Lifesaver." In 1955, the Civil Defence Board of Canada attempted to evacuate Calgary, Alberta ostensibly as a test of civil preparedness, but also as a means of demonstrating the serious nature of atomic warfare and the importance of the civil defence programs in Canada. The exercise was instructive of the government's methods used in attracting civilians to civil defence, the related government concerns of public apathy, and the application of nuclear culture to the capitalist society which celebrated the individual. In these ways Operation "Lifesaver" provides a clear example of the Canadian government's response to its atomic threat.

Historiography

American Cold War historiography, although exhibiting an Atomic Culture quite different from that in Canada, works as a useful model for the study of Canada's cultural

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[31] Orr, 85.

Cold War experience. These studies introduce a number of new themes which allow for an examination of a peacetime society exposed to the possibility of war. In the American context, the atomic bomb's popular culture illustrated the progression of the American public's perception of the bomb from one of hope in the early 1950s, with Eisenhower's "Atoms for Peace" proposal, to one of anxiety with the Soviet development of *Sputnik*, the world's first satellite, and, subsequently, the ICBM in the late 1950s. Studies that looked at the impact of the atomic bomb on American popular culture in the 1950s include work by historians Paul Boyer, Kenneth D. Rose, and Laura McEnaney. In his book *By the Bomb's Early Light*, Boyer studied the dichotomies of civilian fear and enthusiasm about the bomb during the early Cold War period. American society during the Atomic Era was fraught with the conflicting optimistic visions of a utopia provided by atomic power and the pessimism of a potential nuclear holocaust. Historians, such as Rose, recognised the impact of the culture of the bomb on the nuclear family and suburbia. In his book *One Nation Underground*, Rose examined the 1950s and 1960s shelter and the psychological concerns about shelter residents in the event of a nuclear war. He also looked at the anxieties of the Cold War on American culture and the expectation for nuclear annihilation.

American historians studying the 1950s have expanded their focus beyond military, political, and science history and have looked at the "domestication" of the atomic bomb and the "militarization" of the home. These approaches provide a wider scope of the Cold War experience as one which encompassed the personal experience of the home as well as the global political experience. With the examination of the bomb in popular culture and the place of the fallout shelter in the American family, historians have developed a historiography focused on the culture of controlled anxiety. For example, in her book *Civil Defense Begins at Home,* McEnaney provided an important study of Atomic Culture in the United States. McEnaney studied the clashes between the private and public spheres of a society in awe and fear of nuclear power. Her study provided insight into how the conflicting aspects of domesticity and militarization met to produce cultural attitudes of the 1950s in the United States.

Within the studies of domestic spaces, the kitchen has attracted significant attention. The manner in which the Cold War affected the psychology of national consciousness influenced social relations and domestic consumption. For this reason, scholars have regarded the kitchen as a useful site of investigation. The room symbolised a number of essential aspects of the Cold War mentality and culture of the 1950s, and it embodied the ideology of its society. As historian Susan E. Reid argued, the North American housewife's kitchen served as a showroom for her newly acquired capital, while the Soviet housewife's kitchen was a place to demonstrate her role as a worker for the advancement of the communist state.[32] In the same way that Canada's presence in the Cold War could be viewed as a small-scale version of international relations, the kitchen was a domestic version of Cold War ideologies.[33] Further, in regard to gender issues of the era, the kitchen signified the ideology of distinct male and female roles within the nuclear family. With domestic technological innovations, the kitchen was subject to the era's technological races between companies, and in many cases, between superpowers. Reid's study of Soviet Russian society under Khrushchev referred to the kitchen as a

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[32] Susan E. Reid, "The Khrushchev Kitchen: Domesticating the Scientific-Technological Revolution," *Journal of Contemporary History* 40, (2005): 309
[33] Ibid., 289.

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"central site for the linked projects of modernization and advanced construction of communism in the Cold War context of 'peaceful competition.'"[34] In many ways, the domestic technological race, or the "kitchen wars," defined the political ideals of the two superpowers more so than the military technological race. Whereas the construction of nuclear weapons dictated a nation's military might, the kitchen defined its social ideals and the meaning behind its political philosophy. In this way studies of the Cold War kitchen indicate a transition from the global perspective to the domestic point of view in order to accentuate the essence of culture and politics during the Atomic Era.

Although this thesis is not a comparison of Canadian and American Atomic Culture, the role of American Cold War historiography is particularly useful for understanding the Canadian experience. Traditionally, Canadian Cold War historians have focussed on the turbulent nature of the 1950s in terms of military, nationalism, politics and the fear of subversion, and Canada's changing relationship with the United States. In the past decade, however, historians have regarded Canada's Cold War experience as something more than a struggle between conflicting political ideologies. Instead there has been a growing interest in the social struggles within Canadian society. These familial spaces – the kitchen, the suburb, and the nuclear family – move to the forefront of Cold War studies as sites of investigation which redirect the focus away from the superpowers, the nation state, and the political leaders. Historians like Gary Kinsman, Franca Iacovetta, Valerie Korinek, and Gary Marcuse studied post World War II and Cold War Canadian culture and society. Rather than focusing merely on the fear of communist subversion, historians like Kinsman have examined gender and sexuality in a time of strictly imposed social norms, while others, like Iacovetta, have looked at the fear of the "other" during the period of postwar immigration. Historians such as Korinek have studied the culture of postwar prosperity and the accompanying superficial images of comfort found in suburbia during the 1950s. Her studies discussed the domestication of science in the suburb as portrayed in popular literature, in this case *Chatelaine*. Through this source she also looked at Cold War anxieties, although on a social level which focussed on the expected levels of normalcy, rather than in terms of nuclear war. Canadian Cold War historiography is now, as Iacovetta has addressed:

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[34] Ibid., 289.

> No longer the exclusive terrain of political historians of diplomacy and foreign policy, the Cold War, especially its domestic side, has become the subject of a rapidly proliferating literature in women's, gender, sexual, and social history.[35]

Cold War scholars, therefore, have narrowed their subject matter to accommodate more specific levels of society in order to examine the nature and impact of the global issues on culture.

In order to understand the broader Cold War experience it is necessary to examine the "cold war" within the context of the social and cultural history, whether in the kitchen, the suburban community, or the Canada nuclear family during the 1950s. These social and cultural studies of Canada's Cold War, therefore, reveal how the political climate influenced cultural values and the individual's understanding of society. Suburban culture and the distrust of the "abnormal" characterized the era of security and surveillance. Linked to these studies of the Cold War individual is Gary Marcuse and political scientist Reg Whitaker's examination of the Canadian cultural scene during the post World War II communist witch hunts in the Canadian film industry. In their book *Cold War Canada*, they also touched on the government surveillance of Canadian scientists for possible communist or subversive activity. Kinsman also studied the impact of science and technology on the individual in terms of surveillance. Unlike Marcuse and Whitaker's study, however, Kinsman emphasized society's faith in science. He discussed how authorities like the RCMP used it and technology against the individual in the effort to diagnose abnormality and subversive behaviour. But while these scholars discussed the role of the individual in Cold War surveillance, they did not emphasize the existence of Canadian Atomic Culture. These studies featured science and technology in order to demonstrate the Canadian government's targets and tools but not to discuss the Canadian civilian's alternating concepts of these forces as constructive and destructive components.

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[35] Franca Iacovetta, "Freedom Lovers, Sex Deviates, and Damaged Women: Iron Curtain Refugee Discourses in Cold War Canada" in *Love, Hate, and Fear in Canada's Cold War*, 77.

Canada, through its geographical location between two potential nuclear opponents, symbolically portrayed the nature of being held hostage by modern military science and technology. Canada's history of Atomic Culture lies not merely within an existing historiography of the Cold War or twentieth century culture but in the creation of a new course of study altogether. Little has been mentioned of the importance of Cold War science and Atomic Culture to Canadian civilians at the time. For instance, although studies of fallout shelters *do* exist in the Canadian context, they are relatively rare and have not explored the wealth of primary sources available. The existing studies, for example, do not look at the shelter's effect on civilian mentality. Found in all manner of literature and communication, present in all households from the kitchen appliances to the bomb shelter manual, Cold War science was an all encompassing factor of 1950s Canadian society. During the 1950s, science and technology dictated the nature of society, social norms, and the ethics of social behaviour.

Historians have not considered the psychological effects of the Cold War on Canadian attitudes towards science and technology in the same manner as have American historians. Orr, through her combination of sociology, psychology, and history, contributed to the evolving field of Cold War studies. Her book *Panic Diaries* was a study of anxiety and the public's reaction to an implied threat and how this was mediated, controlled, and conducted by powers of authority.[36] This thesis expands upon the themes introduced by Orr through an examination of the conceptualisation of science in society. This study will be limited primarily to the application of science and technology on society, but will also examine the process of civilian consumption of science and technology in an economic and cultural context.

Summary of Chapters

This thesis defines Canada's Atomic Culture by looking at the concept of controlled anxiety and the presence of science and technology in Canada during the 1950s. The primary concerns and questions addressed in the thesis are related to the culture of security and surveillance, the resulting insecurity and anxiety, and how these concepts overlapped through science. Canada's Atomic Era was shaped by conflicting images: a mixture of fear and enthusiasm among civilians in regard to science and technology; the dominance of militarization in a domestic environment; and the definition of traditional ethics and morals that came into conflict with ideological implications of modern science.

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[36] Orr, 41-2.

Behind these conflicting images was a web of actors who both constructed and consumed ambiguous information regarding Cold War science. The Canadian government established a political climate by warning civilians of potential dangers and providing information through civil defence material. The Canadian government, under the Minister of Defence, Brook Claxton, and the Minister of Health and Welfare, Paul Martin, developed Canadian civil defence organizations and strategies.[37] In 1957, under Prime Minister John Diefenbaker, the Canadian Government developed another civil defence program called the Emergency Measures Organization (EMO).[38] Beginning in the mid 1950s the EMO published civil defence material and information for civilians dictating survival methods in the event of a nuclear attack. Linked to the government organizations were the scientists who contributed directly to the production of science and technology, whether in the form of weaponry, domestic appliances, or medicine. The media and cultural producers were influenced by both the government and the scientists and were urged to convert science and technology into consumer commodities for the Canadian civilians in varying forms, from kitchen gadgets to toy "A-Bombs." The final actor was the citizen, or the nuclear family, who literally consumed Atomic Culture. Although a central figure to this thesis the citizen will be studied primarily as the target of the other actors and their roles in the Cold War. Rather than focussing on the civilian's perspective, this study is built around the intents and the reasons behind the strategies of the policy makers to portray Cold War science and technology alternately as a commodity and as a threat.

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[37] Marijan Salopek, "Western Canadians and Civil Defence: the Korean War Years, 1950-1953" *Prairie Forum: Journal of the Canadian Plains Research Center* 14, no.1, Spring 1989, 76.
[38] Manning, 79.

The majority of the material used in this study is based on literature for both civil defence planners and the average Canadian citizen. Popular culture and literature from the 1950s are also useful devises to gauge the degree of the presentation of scientific information, particularly the positive tones with which it was explored. Similar to Korinek's study of suburban culture during the 1950s and 1960s through *Chatelaine* magazine, this thesis examines popular periodicals in an effort to understand the cultural influences on the Canadian mentality during the period (or at least the mentality that the government and civil defence organizations hoped to create among civilians.) This approach indicates a high level of discussion in such media, which particularly introduces the advantages of nuclear science through the focus on domestic progress, including reforms in the home, the military, and society in general.

Chapter one uses popular literature of the 1950s to understand the place of science in society in three parts. Part one of this chapter discusses the dichotomy of fear and enthusiasm for science and technology in Canadian culture and society through an examination of the "science-fiction mentality" and the domestication of the atom as construed by the media. This literature attempted to soften the image of the bomb and was typically directed towards women, through magazines like *Chatelaine*, and towards children, through storybooks and educational activities. Part two examines how these messages contributed to conceptualisations of normalcy in society and the subsequent creation of an era of nostalgia amid a culture of anxiety. The concepts of "normalcy" and "nostalgia" during the Cold War were built by images created by the media, while the concept of anxiety during this era was more so a creation of the government and civil defence organizations. Together these concepts worked to create the nature of the mixed understanding of science and technology during the Atomic Era. Part three focuses on the "Us versus Them" mentality in Canadian society along with the fear of the "other." This discussion also considers how medical science was typically used to define fears that were not directly associated with the Cold War, such as psychological health. The medical community's diagnosis of homosexuality as a social disease, for example, indicated not only the expectation for a well structured and "normal" society, but the increasing faith in science to detect abnormalities in society which might otherwise remain secret or hidden.

The primary sources used for this study were written for average citizens. The subject of the nuclear bomb's presence in women's magazines, children's books, and radio programs demonstrated how ideas of the nuclear bomb reached a wide audience. Nuclear science was also portrayed not just as a threat but as a new era in human history, and was increasingly "normalised" as part of the average Canadian's everyday life. Sources such as *Chatelaine*, *Maclean's*, newspaper editorials, and CBC radio and television broadcasts are important because they reveal how information about nuclear science was communicated to non-expert Canadians.

Chapter two focuses on the ambiguity of protection against nuclear attack, the culture of controlled anxiety, and the rhetoric of the Canadian Board of Civil Defence and EMO handbooks in two parts. The first part of this chapter examines the nature and intent of civil defence and Alberta's role in such organizations. It also examines the debates for evacuation over the use of fallout shelters. The second part of this chapter focuses on civil defence literature and its messages to Canadian civilians regarding protection against attack. In particular, it explores how these often conflicting messages exposed competing ideas about how to alert civilians without frightening them. The Canadian Board of Civil Defence and the EMO published pamphlets assuming the inevitability of war. These pamphlets were tools of propaganda which indicated how average citizens should conduct themselves in the event of a Cold War emergency. In this way the literature did not just educate the public about the possibilities of attack but provided information concerning the cultural and social expectations of the era and what the post-attack goals of a normal society *should* be. The pamphlets also demonstrated the level of detail and knowledge presented by authorities to individuals. The disparity between what scientists knew by the mid 1950s and what civilians were told was often greatly divergent, contributing to the era of ambiguity. In the same way that the kitchen offered a domestic version of the Cold War, civil defence literature offered a glimpse of a future society. By providing prescriptive advice to the civilian, the literature portrayed the idyllic society that governmental authorities wished to preserve.

The themes elucidated in the first two chapters come together in the 1955 Calgary civil defence evacuation exercise, Operation "Lifesaver." In chapter three the thesis looks at other civil defence exercises across Canada and at how Operation "Lifesaver" was different. The planners, through their emphasis on imagery and symbols, illuminated the Cold War as an ideological battle based on a race of scientific innovation. The civil defence and municipal plans concerning the evacuation process demonstrated two important aspects of the nature of the Cold War in Canada. One was the nature of a civil defence application of a theoretical threat to an actual situation. Calgary's evacuation, therefore, provided an illustration and worked as a case study of the civil defence theory in action. Operation "Lifesaver" also exposed some of the main concerns of the civil defence organizers. By looking at the general intent of the operation through the process of the exercise, the rhetoric of the official report, the topics of discussion between planners, and the prominent factor of aesthetics in the exercise itself, some of the underlying assumptions of the planners emerge more clearly.

Canada's Atomic Culture characterized many aspects of the Cold War. It encompassed the comfort of suburbia and the increased standard of living as well as the threat of attack and global destruction. The role of science and technology in society contributed to the era's overwhelming sense of ambiguity. Governments, scientists, and the media worked together to produce images that reinforced the concepts of "right" and "wrong," "constructive" and "destructive," and "Us" and "Them" which were deeply interconnected.

Chapter 1: The Ambiguity of Science: The Enthusiasm for Progress and the Fear of Annihilation

Policy markers and government organizations, families, scientists, and the media all had roles to play in the various efforts to domesticate the atom and to militarize the home during Canada's Atomic Era. Historians, and civilians in later decades, have tended to romanticize the years following World War II. The media and cultural producers have portrayed the era as one celebrating affluence, progress, and victory.[1] Similarly, popular culture has characterized the 1950s with images of happy families, colourful homes, and a generally functional society emphasizing the era's conflicting middle-class desires for traditional values and modern comforts. As a result, historians have often understood the 1950s through the combining influences of nostalgia and distaste; it was a decade of the unattainable ideal and an era of repressing the natural.[2] The role of science and technology in society mirrored these cultural ambiguities of the early Cold War. While the media portrayed science and technology in the material and domestic sector, the government warned civilians against its lethal qualities when in the hands of the enemy. The civilian saw science and technology of the 1950s as both the key to a promising future and the primary threat to humanity's existence.

Science and technology's equivocal role during the early Cold War was accompanied by an illusion of comfort. This outlook, coupled with the panic associated with a wartime atmosphere, coloured the 1950s experience in Canada. Beginning this examination of science in Cold War society is the decade's mixture of enthusiasms for the power gained from scientific and technological innovations, and the accompanying terror of annihilation by scientific means (particularly the nuclear bomb). The anxiety of potential war can be partially explained through an examination of cultural and social attitudes towards science in this period. Science, whether seen as constructive, as in domestic culture, or destructive to society, as in military innovations, played a major role in the stimulation of Cold War anxieties. Often portrayed in the form of the nuclear bomb, science also defined intelligence: Einstein was a cultural symbol of genius. The Soviet Union was considered a threat to the West not only because of its communist ideology but because of its superior space program.[3] Scientific development was also a symbol of progress and the large strides taken in communications, industry, domestic technology, and medicine, made North American life in the 1950s far superior to that of previous ages and of other regions, many of which were still dealing with the damages of World War II.[4] Media and cultural producers highlighted this climate in the form of comic book superheroes, the dream of efficient power, and the science-fiction genre. In terms of Canadian society, the strongest form of scientific fantasy, aside from the strains of popular culture that drifted up from the United States, was related to domestic technology.

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[1] Valerie J. Korinek, *Roughing it in the Suburbs: Reading* Chatelaine *Magazine in the Fifties and Sixties* (Toronto: University of Toronto Press, 2000), 5.
[2] Korinek, 7.

Newspapers, magazines, and civil defence pamphlets featured the prominent threat of the bomb to the future of humankind but also reminded readers of the benefits of science. Magazines like *Chatelaine* welcomed the new era of domestic science and technology, as was evident in articles such as Adele White's "Abolish Those Atom Bomb Blues." The child's world also featured science through educational and extra-curricular programs, storybooks, and films such as Walt Disney's *Our Friend the Atom.*[5] The government's effort to create a familiar or harmless image of science in the world of nuclear power was not without parody, as was the case with Max Ferguson's "Nuclear Warfare Can Be Fun" show from his CBC radio program, "Rawhide." Through these kinds of examples Canadians were exposed to popular cultural images that encouraged a degree of familiarity of the bomb. Civilians experienced the progression of nuclear science through media, films, and radio. In this way nuclear science was not only for esoteric scientific communities but for society at large.

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[3] Korinek, "'It's a Tough Time to Be in Love': The Darker Side of Chatelaine during the Cold War," in *Love, Hate, and Fear in Canada's Cold War*, ed. Richard Cavell (Toronto: University of Toronto Press, 2004), 164.

[4] In his book on the baby boom generation, historian Doug Owram discussed the shift from home births to hospital births in order to illustrate the postwar enthusiasm and trust for science in society. *Born at the Right Time: A History of the Baby Boom Generation* (Toronto: University of Toronto, 1999), 31-2.

1. Science-Fiction versus the ICBM

Of the many ironies of the Cold War, science and technology provoked the most prominent confliction of impressions. The atomic bomb, for instance, introduced a new set of concerns mixing awe with horror. The 1950s, as literary scholar M. Keith Booker noted, were a decade of conflicted impressions where:

> [o]n the positive side, the 1950s were the decade in which space flight, long a staple of the science fiction imagination, finally became a reality; on the negative side, the same technological advances in rocketry also enabled the development of the intercontinental ballistic missile (ICBM), thus allowing far more effective delivery of nuclear weaponry.[6]

The mixed views of science can be traced through a number of themes such as the image of science as a fantasy, the promotion of science as a benefit, and the warning of science as a monster. As Booker stated, the science of the 1950s granted a degree of reality to the dreams of readers and writers of science-fiction with possibilities of fantasy made real in terms of space travel, communications, and a vast arrange of useful gadgets. In the early days of nuclear weapons, the western world viewed the atomic bomb as an aid to humanity that granted the West the possibility of new power based on peace through strength. In this way the nuclear bomb was a "benign," or harmless feature to society in that it could be part for society as a cultural icon or, in the case of the superpowers, as a symbol of national strength.

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[5] Ignited by the Soviet Union's space program and the 1957 launch of *Sputnik*, Americans worked to change their school science programs beginning at the elementary level.

[6] M. Keith Booker, *Monsters, Mushroom Clouds, and the Cold War: American Science Fiction and the Roots of Postmodernism, 1946-1964* (Westport, Connecticut: Greenwood Press, 2001), 2.

In August 1945 World War II ended with the atomic bomb. Although the West welcomed victory over Japan, the effect of the two atomic bombs on Hiroshima and Nagasaki (the "Little Boy" and the "Fat Man")[7] astonished civilians and there was little doubt that the atomic bomb would destroy millions should a nuclear war ever erupt. 1949 witnessed the first Soviet nuclear test, an event which triggered the nuclear arms race in the western mindset.[8] With their increasing fears of a nuclear war between superpowers, policy makers endeavoured to transfer the image of the atomic bomb from one of American military might to that of a peaceful means. This effort to maintain a positive image of the nuclear bomb was also a necessity in the American government's attempts to obtain civilian support for continued nuclear programs. In 1953 American president Eisenhower presented his "Atoms for Peace" speech at the United Nations indicating the government's increased attempts to avoid the possibility of war with a redefinition of the nuclear weapon's role in the world.

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[7] The bombs were manufactured with different materials. The first, "Little Man," was made from the natural element uranium and the second, "Fat Man," from the synthetically prepared element plutonium. What is so interesting about the two bombs is that they were nicknamed, thus beginning the long tradition of nuclear language and euphemisms which exist almost in an effort to make nuclear energy and warfare seem "cuddly."

[8] Laura McEnaney, *Civil Defence Begins at Home: Militarization Meets Everyday Life in the Fifties* (Princeton and Oxford: Princeton University Press, 2000), 13.

The optimistic views of science, particularly those of atomic science, were accompanied by a fear for the future of humanity. These mixed impressions of atomic science were directly linked to the hopes and fears for the future, expressed in the science-fiction genre of the same era, and could consequently be referred to as a science-fiction mentality. Many of the speculations of science in society during the 1950s had only science-fiction as a precedent.[9] Incidentally, the 1950s witnessed a growth in science-fiction literature, film, and magazines. Canada did not produce much science-fiction but was exposed to American material. By 1954, for instance, 80 percent of all magazines sold in Canada were owned by American publishers.[10] But science-fiction literature and film were not the only mediums to expand on scientific innovations or even to express the science-fiction views.

The utopian image of science in society was also expanded upon in non-fiction periodicals such as magazines like *Chatelaine*. Unlike most science-fiction, sources like *Chatelaine* offered a Canadian view of the world of scientific innovation while at the same time exhibited similar utopian themes, or concerns, as fiction literature, without the "fictional" component. In the 1950 *Chatelaine* editorial, "Abolish Those Atom Bomb Blues," Adele White examined the future of science and technology in the average mid twenty-first century Canadian home. White pointed to housework and household appliances as the primary changes in the new world of 2050: "Housecleaning, dishwashing, laundry accomplished in a flash, by pushbuttons."[11] White's editorial demonstrated both the concern for the future and the tendency to view science as a key to a promising "tomorrow world" of fantastic capabilities. The *Chatelaine* editorial revealed an effort to reduce the splitting of the atom to merely another step in human progress. Atomic energy, White stated, led to the improvement of society and life in general. Although its first use was for war, its later role, she argued, would lead to a better level of human existence. After listing various positive effects of atomic power on the world scene, White presented the reader with an optimistic vision of the future with a quick look at the year 2050:

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[9] Booker, 2.
[10] Mary Louise Adams, "Margin Notes: Reading Lesbianism as Obscenity in a Cold War Courtroom" in *Love Hate and Fear in Canada's Cold War*, 137.

> Power so cheap it isn't worth charging for; free rides on railways.
> Propellerless airlines as plentiful as ferry boats or streetcars.
> Motor cars with a small hunk of uranium built in at the factory to run your engine a lifetime.
> … You start the day with an ultraviolet bath. Luscious fruits, grown by artificial light and heat, you can pick from your garden all the year round. And, speaking of gardens, you'll never have to get on the working end of a lawn mower. No, sir. Special lawn seed has been evolved that grows a quarter of an inch and then stops. Weeds have never been heard of except in great-grandma's tattered garden book.[12]

Such a description followed the utopian view as portrayed in science-fiction.

Articles like White's editorial reflected an effort to remain optimistic in the face of uncertainty related to the nuclear bomb and its development. White recognized the concerns related to the progress of atomic science:

> Always man's reaction to his own creative powers – is fear. We need to think more of the creative powers for good. We should listen to the experts, and the scientists, and the dreamers for a change. Let's help to abolish those Atom Bomb blues![13]

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[11] Adele White, "Abolish Those Atom Bomb Blues," *Chatelaine*, January 1950, 53.
[12] Ibid.
[13] Ibid., 6.

Her method of justifying the existence of the nuclear bomb, as the remainder of the article suggested, was to look at the atomic bomb as a saviour of humanity rather than as a danger and to view atomic science as a benefit to the life on earth rather than as an unprecedented threat of war. Throughout her editorial, White illustrated how atomic research would lead to efficient methods of generating energy, world wealth, nutrition, and health, even though "most of our research is dedicated, right now, to making bigger and better bombs" because "if the fear of war can ever be overcome, the peacetime uses of atomic energy are limitless."[14] In order for the idea of atomic energy to "sell" in western society it had to appear attractive to the civilian, and in the age of postwar prosperity and capitalism this was through "commodification." White's presentation of atomic energy catered specifically to the postwar individual's interests in consumerism and recreation.

The government's pressure to "commodify" nuclear science spun from the increasingly tightened link which connected the military to science and technology. The nuclear bomb, from the very beginning, was a large American scientific study.[15] And the nature of the Cold War was one that combined Total War with Big Science (it mixed military means, or technology, with military intent, or politics).[16] The conflict between l

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[14] Ibid., 7.

[15] A particularly chilling passage which indicated the scientific interests discussed the night before the first atomic test in the summer of 1945: "The nuclear scientists themselves had no idea whether or not the atomic blast would actually ignite the earth's atmosphere and thus destroy the entire planet. Nevertheless, they were quite willing to go ahead with the test and find out. The evening before the atomic blast at dawn, the brilliant physicist Enrico Fermi offered to take bets on the outcome. No sacrifice is too great for the construction of the perfect machine." Joyce Nelson, *The Perfect Machine: Television and the Bomb* (New Society Publishers, Philadelphia: 1992), 175.

[16] "Big Science" is a term used for the immense scale of laboratories, research projects, and scientific funding beginning in the mid-twentieth century: "The USA and the USSR,

the United States and the Soviet Union was not just based on political ideology but also relied on nuclear capability.[17] The superpowers continually attempted to develop the technology and consequently engaged one another in a nuclear arms race. Military scientists worked not only on offensive weaponry but on defensive technology which they hoped would deter the possibility of an enemy attack.[18] The nuclear weapon's purpose, therefore, was not to be used in battle but to be used in deterrence of battle:

> Nuclear weapons lend themselves particularly well to deterrence. No other purpose besides defense – indeed, almost no other purpose besides the prevention

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staring at each other across an ideological chasm, began to muster their scientific forces. This marshalling of science produced a new arms race and its corollary, the race to space." Andrew Ede and Lesley B. Cormack, *A History of Science in Society: from Philosophy to Utility* (Peterborough: Broadview Press, 2004), 339. "Total War" refers to the military technological advancements contributing to the complete eradication of the opponent. Destroying traditional hierarchical control and social divisions, the philosophy of Total War demonstrated the close links between battle and political ideology. Military historian Max Boot used World War I technology as an example of the concept of Total War: "A single machine gunner or artilleryman in 1914 could rain down more death than an entire regiment a hundred years before." *War Made New: Technology, Warfare, and the Course of History, 1500 to Today* (New York: Gotham Books, 2006), 198.

[17] Mandelbaum, in his study of the Nuclear Revolution, illustrated how nationalism combined with science created the climate for nuclear weapons during the Cold War. *The Nuclear Future*, (Ithica and London: Cornell University Press, 1983), 21. Douglas Field, in his study of American Cold War culture, also discussed the combination, and eventual blurring, of military technology with politics and culture. *American Cold War Culture* (Edinburgh: Edinburgh University Press, 2005), 7.

[18] As the threat of nuclear attack heightened through the increased tension between superpowers, so did the technology capacitating nuclear delivery. The introduction of the ICBM in 1957 altered expectations of attack. Unable to be intercepted, like its predecessor the bomber, the ICBM also changed the understanding of protection against nuclear attack. By the early 1960s delivery systems included the surface-to-air missile (SAM) and the sea-launched ballistic missile (SLBM), a device that had platforms difficult to detect but which was, until the late 1980s, much less accurate than the ICBM. The late 1960s witnessed the development of the multiple independently targeted vehicle (MIRV), a weapon that provided a series of strategic implications: it boasted several warheads and was designed primarily to attack an opponent's nuclear weapons. Karl P. Mueller, PhD., "Strategic Airpower and Nuclear Strategy: The New Theory of a Not-Quite-So-New Apocalypse," in *The Paths of Heaven: The Evolution of Airpower Theory*, ed. Col. Phillip S. Meilinger (Maxwell Air Force Base, Alabama: Air University Press, 1997), 282-284.

> of their own use – has thus far seemed plausible for them. … A country that tried to conquer another with a nuclear attack would rend worthless the territory it hopes to occupy ….[19]

The proper application of nuclear arms, therefore, was the prevention of war through a threat of war.[20] The threat could only occur through the amalgamation of nuclear arms and research. In order to gain civilian support for nuclear projects, the government and cultural producers had to work together to portray the bomb as both a threat when on the defensive and an asset when on the offensive.

The role of nuclear science as a commodity in the lives of Cold War civilians indicated the more benign place of the bomb in the public mentality. Korinek, in her article "'It's a Tough Time to Be in Love,'" stated that the

> 'space age' was an adjective used to describe progress, and new products – ranging from aluminium cookware and multivitamins to (very late in the sixties) products like Tang (powdered orange juice). Many of these were marketed as by-products of the U.S. space program.[21]

The adaptation of military technology to the domestic sphere further indicated a cultural acceptance of science and technology during the Cold War. The microwave and instant food items, like soup and mashed potatoes, were all products of World War II and became prominent features of the postwar kitchen. Korinek went on to note that "[i]n the editorial material as well, 'space age' was a general code word that indicated progress, the future, and, at its most extreme, fantastical speculations about how Canadians would live in the twenty-first century."[22] This view of scientific progress and its benefit to civilian society particularly followed the theme of science as fantasy in the postwar period. Once the anticipated level of science was reached, marketing powers and the government emphasized the process of achieving a similar level of fantasy to maintain the benign or gentle image of the scientific progress which converted luxury to necessity in an age of affluence.

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[19] Mandelbaum, 29.
[20] Ibid.
[21] Korinek, "'It's a Tough Time to Be in Love," 163.
[22] Ibid., 164.

In the years following World War II, science achieved the level of fantasy anticipated by many science-fiction writers. *Chatelaine*'s vision of the future of atomic energy was evident in other efforts to promote the benefit of a wealthy and peaceful world through science, such as Eisenhower's 1953 "Atoms for Peace" proposal. Throughout the early Cold War the image of the atom was complemented by various guides provided by the American Atomic Energy Commission and, a couple of years later, by Walt Disney.

In 1954, Walt Disney created an instructional film for children featuring the power of the atomic bomb and the more benign uses of atomic energy. Disney made the film, *Our Friend the Atom*, to bring science to American citizens in an entertaining manner. Disney's intent in making the film was to have the atom in the American mindset as "science factual" rather than "science fiction."[23] Although Disney saw himself as fulfilling a duty to educate the American public, he was not creating anything new in terms of science in society or education. The film added to an established genre – science education – which dated back to the nineteenth century.[24] The motto of the Chicago World Fair, for instance was: "Science Finds. Industry Applies. Man

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[23] Elizabeth Walker Mechling and Jay Mechling, "The Atom According to Disney," *Quarterly Journal of Speech* 81 (1995): 437.
[24] Mechling and Mechling, 438.

Conforms."[25] In terms of education, American and Canadian children were, by 1954, increasingly exposed to science through the school system and parents eagerly supported various extracurricular programs in scientific education from storybooks to chemistry sets.[26]

Walt Disney's cartoon depicted the idea of the atom as deeply ingrained in human history by showing the initial definition of "atom" in Ancient Greece. Again, this effort to create a logical progression of science in history to include the atomic bomb was another aspect of White's article. Having the atom present throughout human history aided the concept of the atomic bomb being part of humanity rather than an intrusion on it. To associate the atom with comfort, the government, advertisement corporations, and the entertainment business deliberately constructed images like the mushroom cloud and associated them with the "awesome power of American scientific and military know-how" rather than death and destruction.[27] Beyond a mere effort to construct a positive portrayal of the atom, these endeavours were more directly related to making the new age of humanity bearable in the face of rapid and unprecedented change in science, the military, and society.

Disney's cartoon of the atom was presented like most of his adaptations of history and fairy tales: clean, benign, and innocent. In the film the atom was represented by a genie that was discovered by a fisherman. Like the genie, the atom, when left to its own devices, could use its power to wreak havoc on the world. Just as the fisherman in the story directed the genie, political powers and scientists had to carefully direct the atom to serve humanity. The atom was also like the genie in that it could grant wishes, in this case quite similar to the scientific attributes discussed in White's editorial: energy, food, health, and peace. The film illustrated the powerful theme of transferring science from an esoteric study to a useful product. Scientists, by making the atom "our friend" harnessed its awesome and unprecedented power.

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[25] Ibid.
[26] Ibid., 443.
[27] A. Costandina Titus, "The Mushroom Cloud as Kitch," in *Atomic Culture: How We Learned to Stop Worrying and Love the Bomb*, edited by Michael A. Amundson and Scott C. Zeman (Boulder, Colorado: University Press of Colorado, 2004), 105

Our Friend the Atom was not the only product of Atomic Culture fashioned for children. DC comics also helped establish the atom in the average North American childhood. Post World War II editions of Captain Marvel comics often featured "atomic parables," stories which typically warned the readers of the dangers associated with the use atomic energy in war.[28] The October 1946 edition, for instance, had Captain Marvel confront the onset of an atomic war.[29] In 1953 cartoonist Al Fargo created the character Atomic Mouse who gained his power from swallowing some "U235 pills."[30] Later on, in the 1960s, DC comics introduced other atomic heroes like Captain Atom (1960), Dr. Solar (1960), and, most famously, Spiderman (1962), all of whom received their powers from some form of atomic energy.[31]

Chemistry sets became common gifts under the Christmas tree and by the early 1960s American Boy Scouts were able to earn an "Atomic Energy" merit badge by learning about the physics of atomic energy, the history of its development, and even by practicing a few experiments.[32] The requirements for the badge involved both theoretical and practical exercises, from identifying atomic terms and principle figures in atomic science, to building models of molecules and drawing diagrams of the nuclear fission process.[33] Exercises also sought to test the children's knowledge of atomic safety[34] and their understanding of how instruments used in detecting radioactive material operated.[35] By the mid-1950s Canadian Boy Scouts were able to earn a badge for civil defence and for chemistry. In 1956 there was even the addition of "Atomic Cubs" to the traditional division systems of Cub groups:

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[28] Ferenc M. Szasz, "Atomic Comics: The Comic Book Industry Confronts the Nuclear Age" in *Atomic Culture*, 17.
[29] Ibid.
[30] Ibid.
[31] Ibid.

> From our Atomic Development Centre at Chalk River, Ont., comes a new term for denoting A and B Pack. One Group is called the Atoms and the other Pack is called Neutrons and now we are wondering what names have been assigned to the Scouters of these two groups, and if perhaps their totem is mounted on a portable Geiger counter.[36]

An interesting aspect of this shift in the organization's focus demonstrated a transition from the traditional concern to acquaint young boys with nature and natural science to a modern method of educating them through physics and chemistry.

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[32] Mechling and Mechling, 444.

[33] The requirements for the "Atomic Energy" merit badge were published in a handbook under the direction of Saul Harris of the United States Department of Health, Education, and Welfare. There was a list of six tasks for the Boy Scout to successfully complete before earning the badge. "Boy Scout Atomic Energy Merit Badge" <http://www.orau.org/ptp/collection/medalsmementoes /boyscoutbadge.htm> [accessed February 19, 2008].

[34] One activity involved drawing and colouring a radiation hazard symbol. In addition to this the Scout was expected to know where the sign was to be used along with the importance of using radioactive materials carefully. Ibid.

[35] Another activity was described as follows: "Using a Geiger counter (that you have built or borrowed), find a radiation source that has been hidden under a covering. Find it in at least three other places under the cover. Explain how someone could use this in medicine, research, agriculture, or industry." Ibid.

[36] Robert E. Milks, *75 Years of Scouting in Canada*, (No Publishing Information, 1981), 215.

As Americans produced friendly atomic manuals for children, like *Dagwood Splits the Atom*, Canadians also combined national pride with atomic education. One series in particular, *Dale of the Mounted*, featured Dale, a young RCMP officer, and his adventures in Cold War Canada. Written by Joe Holiday, the series was aimed towards young adult readers and featured aspects of the Canadian natural landscape with stories associated with the Cold War. With titles like *Dale of the Mounted: Atomic Plot*, *Manhunt at the UN*, and *DEW Line Duty*, Holiday's series combined national pride, education, and adventure.[37] Holiday's books are among the few examples which demonstrated a direct link between Canadian society and Cold War culture in terms of popular fiction. They were, however, effective in demonstrating the presence of the Cold War in Canadian culture, the related concerns of the era, and the effort to familiarize young civilians with the idea of atoms and atomic energy as commonplace features of everyday society.

White's optimistic *Chatelaine* editorial, Disney's cartoon, and the children books were created to dispel public fears about the future and to sell the atom to civilians. These forms of science-fiction were not exclusively based on utopian visions of the future; they also expressed the fears attributed to a world governed by atomic science. The focus on children was important to this process and to the nature of the Cold War since it was believed that children were the most impressionable members of society and were therefore central to winning an ideological war. American historian Geoffrey Smith, in a personal account of Cold War culture, noted the unsettling effect of science fiction films on a child's mind. He referred to three films in particular: *The Thing* (1951),

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[37] Charlotte Gray, *The Museum Called Canada: 25 Rooms of Wonder* (Random House Canada, 2005), 589.

Godzilla (1954), and *Them!* (1954), all of which featured creatures mutated by atomic energy.[38] Smith observed that "[t]hese cinematic bogeys all came to a bad end, but not before wreaking havoc sufficient to give an idea of what post-atomic chaos might approximate."[39]

With the advent of nuclear competition, following the first Soviet nuclear test, the 1950s opened to an era of atomic propaganda. The question then was how society would react to a nuclear threat, how it would deal with civil panic, and how the government would control the situation. White's editorial demonstrated one course of action: to transfer the threat into a sensible, comfortable, familiar, and benign situation. She, in the same manner that Disney did a couple of years later, painted the future of atomic power in a peacetime context. White began the body of her argument with the following observation: "Atomic energy was never meant to be a destructive force, any more than electricity's main purpose was to kill by the electric chair."[40] This statement was overly optimistic. She continued on to note that with each scientific invention there was the possibility for evil associated with the benefit that later prevailed. The editorial's main purpose was to divert the fears that the public had towards the atomic bomb:

> And now it hangs over us like a black cloud, this fear that our world may end

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[38] The setting for the films, interestingly, all take place in atomic hotspots, as it were. *The Thing* featured a creature in the North Pole, the "no man's land" between the two superpowers; *Godzilla* was born in Japan, the first country to receive a nuclear attack; and *Them* featured mutated ants in the New Mexico desert, the birthplace of the Atomic bomb.

[39] Geoffrey S. Smith, "Interrogating Security: A Personal Memoir of the Cold War" in *Whose National Security?: Canadian State Surveillance and the Creation of Enemies*, ed. Gary Kinsman, Dieter K. Buse, and Mercedes Steedman (Toronto: Between Lines, 2000), 192.

[40] White, 7.

> tomorrow: that mass annihilation was the objective when we accomplished the greatest scientific feat of all time: the splitting of the atom.[41]

The remainder of the *Chatelaine* editorial completed White's effort to alleviate the fears of nuclear annihilation. Aside from the various pieces of fiction, the magazine featured numerous plans for living in 1950, whether through fashion, diet, or household management.[42] The magazine provided a contemporary vision for the future which, aside from White's brief look at 2050, focused mainly on the present.

White was responding to an obvious fear in the Canadian public during the early Cold War. One editorial in a 1951 edition of *Maclean's* not only expressed the fear of a potential nuclear war but assumed the possibility of World War III while questioning how World War IV could be prevented.[43] Another editorial in the *Lethbridge Herald* in 1954, entitled "Race of Human Monsters," expressed the terror some civilians had about the new forms of military science and the detrimental effect they could have on future generations.[44] Referring to the "birth of freaks" the article discussed the dangers of nuclear poison on the human body, not just for those directly exposed to radiation following an attack but for their unborn children. Beyond the physical dangers, the psychological effects of a nuclear threat on the Canadian public were prominent and lurked beneath the cheerful optimism and domestication of the atomic bomb.

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[41] Ibid.

[42] The January 1950 edition of *Chatelaine* did not feature any other articles concerning nuclear science or even the Cold War, aside from Byrne Hope Saunder's introduction regarding "the Biggest Thing in Our New Half Century." Instead the magazine featured a fictional love/ghost story entitled "The Vixen" along with the regular ads for feminine products and domestic appliances. One feature in particular, "Buy 'Brand Names' … As Seen in Chatelaine" (46-7), exemplified the consumer mentality of civilians and magazine editors of the 1950s.

[43] (Editorial), "Let's Stop the Fourth World War," *Maclean's*, January 15, 1951, 1.

[44] (Editorial), "Race of Human Monsters," *Lethbridge Herald*, November 3, 1954, 20.

Several sources employed humour as a way to deal with the difficult subject of nuclear war. Examples of humorous takes on nuclear war demonstrated the presence of the fear in society, the familiarity of society to the fear to understand the humour, and the power of the fear to create a need for humour. One of the more famous pieces of Canada's Atomic Culture in the early Cold War was Max Ferguson's response to the Tocsin B Test, "Nuclear Warfare Can Be Fun," featured on his radio program "Rawhide" (1961). The Tocsin B Test was one of a series of tests conducted over Canadian radio by the Emergency Measures Organization (EMO) in an effort to prepare Canadians for a nuclear attack. Tocsin B, broadcasted in November 1961, simulated a Soviet attack on Canada where several major cities were destroyed and the Prime Minister (John Diefenbaker) was killed. Ferguson lampooned the lack of advice offered to the Canadian citizen to prepare for attack. In his program he impersonated one of the heads of the EMO and expressed his confusion at the interviewer's question about what the "average man" should do in the event of the Tocsin B test or the "real thing": "Well, I suppose you could go under a kitchen chair, the kitchen table, something like that. … Jump in bed, pull the covers over your head. Stuff cotton wadding in your ears because this comes with a big bang!"[45] He went on to suggest that people could even go outside into the garden if they wanted, "hold hands and sing songs" or cover themselves with leaves.[46]

As humorous as this parody of Tocsin B preparations for Canadians was, there remained a level of reality to it. Ferguson demonstrated not only the elusive advice for Canadians in the event of attack, or the lack of information of proper protection against a nuclear bomb, but the importance of achieving a level of comfort when looking at the possibility of a nuclear bomb. In order for the Canadian government to present information to the public regarding a potential war they had to use an optimistic slant to avoid mass panic among civilians. Ferguson's program featured the authorities' deliberate endeavours to maintain a high morale through positive rhetoric and language in the face of possible nuclear annihilation. Throughout the show his characters offered various light-hearted methods of dealing with the possibility of nuclear destruction through slogans like "nuclear warfare can be fun," rhymes for school children to sing while running around the neighbourhood during a test: "Fallout, fallout, the radiation is out!", and even a jingle: "EMO, Emo, When you're feeling low, Emo, In nuclear warfare, It's good good for you, E.M.O."[47] Ferguson's parody poked fun at the evasive techniques that preparation committees used when educating the public about nuclear threats. By 1952, with the introduction of the hydrogen bomb, scientists knew the effects of nuclear radiation on the human body and the environment. The information presented to the public continued to reassure civilians about the survivability of a nuclear attack.[48] Ferguson's "Nuclear Warfare Can Be Fun" was humorous, but it was also represented an awareness of the conflicting messages issued by the federal government and civil defence authorities.

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[45] Max Ferguson, "Nuclear Warfare Can Be Fun," <http://archives.cbc.ca/IDC-1-71-274-1464/ conflict_war/cold_war/clip7>, November 9, 1961 [accessed September 20, 2007].
[46] Ibid.

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[47] Ibid.

[48] Fred Charles Iklé's 1958 study on the social impact of bomb destruction discussed the civilian's dichotomous impressions of nuclear science: "It is as if people accepted two contradictory realms of facts. The findings of nuclear physics and of tests with nuclear weapons are fully accepted as true facts; but at the same time there is the world in which we live, in itself also more or less rational and factual, yet entirely unreconciled with the world of nuclear bombs." *The Social Impact of Bomb Destruction* (Norman: University of Oklahoma Press, 1958), vi.

2. Canada's Era of Nostalgia and Anxiety

The process of domesticating the bomb was one which embraced the culture of anxiety. Historians Elizabeth Mechling and Jay Mechling defined the term "domesticating the bomb" as the process of portraying the atomic bomb as a less frightening entity.[49] This term also entailed a connection between family values and nuclear science. The civil defence organizations presented the civilian activity of assembling a "do-it-yourself" shelter kit in the effort to save families from a potential war as an unproblematic domestic activity.[50] In terms of domesticity, little could compete with the father and son building project. This process of bringing the domestic world into civil defence practice was achieved by a number of methods including bomb shelter kits, guides that played down the danger and difficulty of nuclear war, and the presentation of good housekeeping as an extension of physical and ideological readiness. Carrying on the theme of domesticity were civil defence advertisements and plans for shelters which portrayed the family bunker as a recreational building. In order to save space most shelter plans had bunk beds for its residents, much like a summer cottage, and promotional material generally portrayed the shelter residents relaxing in what appeared to be their second home. In this regard the fallout shelter was very much a sign of affluence, like the family cottage. The language of nuclear war was also altered to take on a more domestic meaning as was illustrated in Richard Gerstell's handbook *How to Survive an Atomic Bomb* (1950). By referring to radioactive material as "dirty" or as "dust," for instance, Gerstell attempted to portray a potential apocalyptic ruin as a household mess, or at least a disaster that could be fixed with the correct application of cleaning equipment.[51]

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[49] Mechling and Mechling, 443.

[50] (No Author), *Your Basement Fallout Shelter: Blueprint for Survival No.1* (Ottawa: Queen's Printer, 1960), blueprint included in booklet.

In addition to domesticating the bomb, civil defence organizations also militarized the home through their activities and literature. The civil defence use of nuclear vocabulary in the domestic sphere also indicated a direct link between domestic cultures and the military in society. There was a distinct military mentality present in Canadian postwar society in terms of the regimentation and organization of the home. Advertisements during the 1950s were often militant in their orders for consumers to eat healthily, to prepare food with the right tools, to achieve the expected levels of hygiene, to behave correctly, and to follow the roles and duties one should use within the home. This became particularly evident with the civil defence literature which stressed the importance of proper organization in the home to better prepare for nuclear war. One pamphlet, entitled *Your Emergency Pack*, exhibited a manner of militarism in the apparently strict regulations for survival equipment. The pamphlet, which gave exact measurements and types of food items, read like an army supply list.[52]

Society's fear of communism was another feature of the Cold War and one which consequently dictated the nature and level of comfort and normalcy in society. In their book *Cold War Canada*, Whitaker and Marcuse examined the effect of the Cold War on Canadian culture in terms of the National Film Board (NFB) purges during the late 1940s and early 1950s. The purges began with the head of the NFB, communist sympathizer John Grierson, and worked their way through the rest of the staff. In an age when film and television were two of the primary sources and expressions of culture in North American society the effects of the witch hunts on the Canadian film industry proved to be particularly hazardous to Canadian popular culture. Without a strong home-grown film industry Canadians were obliged to watch American movies and television shows.[53] These communism anxieties were not, as historian Steve Hewitt noted, limited to the civil servants, academics, scientists, and documentary film directors, but found their way into all aspects and levels of society:

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[51] Sarah A. Lichtman, "Do-it-Yourself Security: Safety, Gender, and the Home Fallout Shelter in Cold War America," *Journal of Design History* 19, no. 1 (2006), 49.
[52] (No Author), *Your Emergency Pack* (No Publishing Information, 1961).

> All of these factors contributed to a record expansion of targets in the post-1945 period, as the police sought to systematically record everything about anyone and anything with the remotest connection to communism. In 1952, for example, the RCMP began 'carding' children either because they or their parents were deemed to be involved in subversive activities, and plans were made to intern them in the event of war with the Soviet Union."[54]

The level of paranoia in Cold War Canada can be gauged by the nature of the security measures present at the time. The level of RCMP surveillance of possible subversives "reflected the inherent insecurity of the state toward its own citizens and, indeed, a lack of faith in the sustainability of the political and economic system." [55]

Essentially, the "other" threatened all facets of society. The "other" could be a threat to Canada through a subversive government official, the government official's private life, and even the practices of the government official's family. Policy makers placed distinct borders around what was known and accepted, designating areas of safety and reason within society.[56] Civilian distrust of the unknown went beyond the atomic bomb and worked its way into apparently abnormal choices of lifestyle. As historian Mary Louise Adams stated, the era, although peppered with images of postwar wealth, was far from utopian in nature. Canadians during the 1950s identified a general distrust for the future: "This complicated social anxiety is a hallmark of the Cold War, a time when Canadians were nervous about the world beyond their borders, about the unknown, and about the 'other.'"[57] Amid the Cold War insecurity, media manufactured the image of comfort in the form of nostalgia. The nostalgia created during the 1950s, in reaction to the paranoia of the society, has remained particularly powerful throughout the decades following the era, characterizing it as a prosperous and well structured society full of functional families. The Atomic Era was, in reality, remarkably different and it was a period when the "… Canadian quest to live 'modern' … was the result of tremendous social and economic changes."[58] Historian Mona Gleason argued that the 1950s "is often misrepresented as an uncomplicated 'golden era' in the history of the family, when prosperity, happiness, innocence, stability, contentedness, and confidence reigned."[59] The image of comfort in the suburb, as was seen in the 1956 *Crestwood Heights* study, was a primary factor in the maintenance of the assumption of "normalcy."

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[53] Reg Whitaker and Gary Marcuse, *Cold War Canada: The Making of an Insecurity State, 1945-1957* (Toronto: University of Toronto Press, 1994), 229.

[54] Steve Hewitt, "Sunday Morning Subversion: The Canadian Security State and Organized Religion in the Cold War" in *Love, Hate, and Fear in Canada's Cold War*, 60.

[55] Hewitt, 69.

[56] Mary Louise Adams "Margin Notes," 137.

The *Crestwood Heights* study was interesting in the writers' attempts to understand or at least define what was normal in their society. Through various social assumptions about gender, ethnicity, and class, the writers illustrated rules of Canadian society which were apparently understood and universal. For instance, the study referred to food as something that was commercially produced and brought into the home to be prepared.[60] This definition of food preparation demonstrated not only the middle-class status of the suburbanite (there was no question of the residents having domestic help) but the expected non-rural setting of the suburb. The suburb was not meant to be a place with strong links to farm life, although many of these neighbourhoods were situated on the outskirts of urban centres closer to the rural areas.

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[57] Ibid.
[58] Korinek, *Roughing it in the Suburbs*, 7.
[59] Mona Gleason, *Normalizing the Ideal: Psychology, Schooling, and the Family in Postwar Canada* (Toronto: University of Toronto Press, 1999), 7.

The writers also demonstrated the assumptions embedded within society that were evident with the construction of the *Crestwood Heights* family. The suburban family, according to the study, was not tied to its extended family members: "The newly formed family is frequently isolated geographically and often socially from the parental families."[61] The *Crestwood Heights* authors recognized that the image of the family was particularly familiar to society through various cultural products like TV shows and films: "These are the comfortable, delightful, middle-class families of fantasy. The Crestwood Heights family is not like these – and not unlike these."[62] From here the researchers discussed the image and reality of the *Crestwood* family and the expectation for a correspondence between the two. The family, according to the study, was created through a formula:

> [The family] is, more often than not, formed by the marriage of two persons from unrelated and often unacquainted families; persons perhaps differing in temperament and background, who are assumed to have chosen each other because they are 'in love.'[63]

The scholars then went on to observe that although there are other reasons for marriage, none were on more acceptable grounds (or more normal) than that of being "in love."

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[60] John R. Seeley, R. Alexander Sim, and Elizabeth W. Loosley, *Crestwood Heights: A Study of the Culture of Suburban Life* (Toronto: University of Toronto Press, 1969), 43.
[61] Ibid., 160.
[62] Ibid., 159.
[63] Ibid., 160.

The study, although it attempted to present the modern suburban life-style in an objective manner, succeeded instead in portraying the point of view of the writers who used their understanding of the well-ordered suburb as the basis of normal society. The expectation of normalcy surfaced through the authors' focus on social rules and legalities. The discussion regarding the construction and "function" of the family was based on the parents' legal control over the child and their legal obligations to one another.[64] This interpretation of the family disregarded, among many things, common law marriages, single and unwed mothers, and, naturally, same-sex unions. The evaluation also focussed on the importance of a married couple's ability to procreate. According to the authors the *Crestwood Heights* family emulated the image of normalcy through its adhesion to social expectations of legalities. In this way, *Crestwood Heights* was indicative of its contemporary cultural expectations for comfort and normalcy.

Several historians studying Canadian culture during the postwar era have looked at the creation and maintenance of this image of normalcy. Doug Owram studied the baby boom and examined how this generation created a culture of the child; what was deemed normal was built around the apparent necessities for children and the structure of the nuclear family:

> Babies became the predominant topic of conversation. Columns of advice, fiction, and advertisements were aimed at families with infants. Articles either extolled the wonder of it all – 'Born to Mr and Mrs Canada 300,000 Babies' – or provided tales aimed at the parents of young children. More and more baby-food, diapers, and baby-powder ads appeared. Life insurance companies were especially quick to capitalize on the new responsibilities of young fathers. … Automobile companies, which had previously tended to target young couples with their ads, now featured whole families.[65]

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[64] Ibid., 162.

[65] Owram, *Born at the Right Time*, 5.

Joy Parr looked at the culture of Canadian consumerism after the Second World War and showed how this affected the mindset and expectations of Canadians, in particular, how the term "consumer" became synonymous with "citizen":

> The term *consumer* gained great currency in the 1950s for the confluence of autonomy, plenty, and compliance it inscribed. Since then, the term has taken on ever greater generality. Now 'consumer' has entered the public discourse as a synonym for 'citizen.'[66]

The work of Valerie Korinek on the creation and maintenance of normalcy through images and advertising is particularly relevant to this study. One of Korinek's central arguments for the importance of *Chatelaine* in Canadian culture was based on image. The image, according to Korinek, combined the realities and myths of an era through the photograph, the magazine illustration, and the advertisement. The magazine displayed an impression of cheerfulness and assumed conformed femininity but in actuality expressed the underlining issues of the era:

> Yet during the fifties and sixties *Chatelaine* was transformed from a thin magazine devoted primarily to fiction, departmental features, and cheerful editorials into an important resource for Canadian women which emphasized general feature articles, opinionated and often feminist editorial essays, and reader participation."[67]

Through a mixture of nostalgia and hindsight, civilians during the 1950s experienced a series of images and myths of perfection which influenced their understanding of society and, ultimately, normalcy. Korinek stated that amid this struggle for perfectionism, the Canadian ideal was more "down to earth" than the American pursuit.[68] Magazines featured images of families enjoying the outdoors, in many respects exhibiting the domestication of nature. Korinek referred to one *Chatelaine* ad for Mary Maxim sweaters: "Such ads displayed an earnestness and lack of sophistication or artifice that seemed particularly Canadian."[69] Regardless, the image of perfection remained, accentuating the myth of "homogeneity." The ideal of a perfect postwar society was defined by the image of the average and the "normal." Only a select few Canadians, however, could associate themselves with this suburban ideal as it excluded urban and rural residents, ethnic families, individuals of different social classes, and non-heterosexuals. The homosexual was a perfect example of the challenges to 1950s society because of the highly publicized stress on the nuclear family. How to sell this image was not the central concern of the media in accentuating the social expectation of the nuclear family. Rather, the question was how to justify the image and to create its glossy existence. Scientific evidence gave reason for discrimination based on proven fact defining the superiority of life and living practices. Throughout 1950s society, through advertisements, the government, and entertainment, science was used to justify prejudice and to legitimise discrimination.

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[66] Joy Parr, *Domestic Goods: The Material, the Moral, and the Economic* (Toronto: Universtity of Toronto Press, 1999), 4. (Original emphasis.)
[67] Korinek, *Roughing It in the Suburbs*, 15.
[68] Ibid., 144.

3. Using Science and Technology to Define Fears

Gender and sexuality in 1950s Canadian society experienced the methods of the scientific diagnosis of subversion and social abnormality. Political scientist Reg Whitaker, in his examination of Cold War national security and its relevance in the early twenty-first century, commented on the American influence over measures taken against apparent subversives: "There is little evidence from the public records that Canada was initially interested in pursuing homosexuals as security risks, but under American pressure, homosexuality was added to the prohibited categories in the Immigration Act."[70] Regardless of the American influence on Canadian security policies, Canadian prejudice of homosexuals was directly connected to worries of the "other" and political subversion. The fear of the hidden was central to Canadian Cold War anxieties. The "hidden," in the case of the Cold War, constituted for all that was subversive to the acceptable way of life, such as communism or homosexuality. Both of these challenged the social norms of the western- and family-focused postwar society. In his article "Interrogating Security," Geoffrey Smith suggested that the fear of the hidden was best symbolized by atomic radiation which could poison the human body while remaining undetected by the human eye.[71] Many Canadians considered communism and homosexuality to be similar threats. The fear of the hidden was dependent on science and technology for its definition, as discussed by Smith, and through its detection.

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[69] Ibid.

Although historians and civilians of later decades have generally viewed the 1950s as a conservative era of strict social boundaries, contemporary impressions were far from the constricting attitudes towards sex of earlier generations. Although sex was increasingly presented as a natural and biological topic, community attitudes remained restricted. In his *History of Sexuality* (1976), Michel Foucault examined the censorship of sexuality following the seventeenth century. In his introduction, Foucault discussed the process of repressing the subject of sex in society: "repression operated as a sentence to disappear, but also as an injunction to silence, an affirmation of non-existence, and, by implication, an admission that there was nothing to say about such things, nothing to see, nothing to know."[72] Victorian censorship worked primarily through language where euphemisms and obscure definitions disguised the actual act. 1950s society made sexuality more public but still carefully masked the subject at the same time. The nineteenth century removed sex from society, but the 1950s it made the subject public, although mediated it by science.

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[70] Reg Whitaker, "'We Know They're There': Canada and Its Others, with or without the Cold War" in *Love, Hate, and Fear*, 45.
[71] Smith, "Interrogating Security," 191.

Marriage during the 1950s received similar scrutiny. The blurring of gender roles that had occurred during the war years was followed by a move to establish (or re-establish) clear spheres for men and women. The government and many social commentators believed that a calm and orderly society depended on people having a clear idea of what their role in society was. Men and women had distinct roles within the family which were designed to work together to create a functioning home. The gender divisions of the early Cold War were meant to be as simply clear-cut as the era's advertising images: while the girl was seen in relation to beauty and decoration, the boy was typically portrayed as a "brat."[73] Society clearly defined gender roles in the public and private spheres, distinguishing its desire for normalcy in a changing world. These well established gender roles remained particularly valid in civil defence exercises and literature, working to both effectively divide labours to ease the process of civil defence practice, and to designate a well-ordered society in the post-attack world. A classic example of this maintenance of gender roles can be found in the 1962 booklet *Survival in Likely Target Areas* which featured an image of a man reinforcing a house's foundation while a woman practiced first aid.[74]

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[72] Michel Foucault, *The History of Sexuality: An Introduction, Volume 1*, trans. Robert Hurely (New York: Vintage Books, 1990), 4.
[73] Korinek, *Roughing it in the Suburbs*, 165.

Historians have paid much attention towards women's roles in the home during the 1950s, particularly following the war years when women allegedly stepped out of their traditional domestic roles to aid the war effort. Gender regulation during the postwar years was not limited to the role of the woman within the home but included the man's role in society. One of the greatest fears of the postwar era, and ultimately the reason behind the promotion of the traditional way of life for men and women, was the elusiveness of gender and the threats that this ambiguity would cause society: "The images of danger were organized through the concepts of gay men and lesbians crossing and defying class and gender boundaries."[75] By countering social gender definitions homosexuals, or at least individuals who were apparently ambiguous to gender roles, were not challenging the *social* understanding of gender but what were considered to be "natural" or "biological" roles. To help maintain the understanding of gender, women were urged by society to return to the role of mothers and housewives while men had to reclaim their status as workers and heads of the home. In the postwar society, the concept of femininity and masculinity needed to be redefined for an era of peace, and the home, as the sphere of greatest interaction of the sexes, became the obvious focus for gender issues.

The maintenance of gender normalcy during the 1950s was by no means a simple task. The suburb, which was seen as a remedy for the woman in society, was a threat for the man. The suburb's domesticity, which emphasized the feminine and mothering qualities in women, threatened the survival of men's masculinity:

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[74] (No Author), *Survival in Likely Target Areas: Blueprint for Survival No.5* (Ottawa: Queen's Printer, 1962), 18.
[75] Gary Kinsman, "Constructing Gay Men and Lesbians as National Security Risks, 1950-70" in *Whose National Security?*, 143.

> Husbands and fathers were told by social commentators that certain forces in postwar society were emasculating: white-collar office work, suburban living, and increasing amounts of time spent away from their families. Psychologists told husbands and fathers that their gentle dominance in the home was required to confront and combat these negative social conditions."[76]

The 1950s were the era of the "do-it-yourself" project and the family vacation. By participating in such family-enforcing activities, men established their responsibility within the family and played the role of the "stabilizing, white-collar guardians of heterosexuality, powerful correctives to the neuroses of women, and heads of middle-class families."[77] The functional family was a symbol of a secure society. At the base of this ideal was the science which defined normalcy and the classified expectations for the image of success. Science in this case interpreted normalcy through proper behaviour and gender roles, first within the family and then within society.

Normalization of gender roles was not limited to the suburban spaces. The governmental systems of the postwar era exhibited a number of gender concerns which were directly related to the menace of male homosexuality. Cold War threats typically came in the form of secretive activities hidden from plain view. Just as communism threatened the freedom of the western world and radiation challenged the future of humankind, homosexuality worked against the image of the nuclear family:

> Efforts to contain perceived threats from within, whether from reds and pinkos, foreign female spies, treasonous lesbians, or defective refugee men, were linked to social and political developments that profoundly affected North American postwar society through, among other things, a resurgence of conservative family ideology and the undermining of individual freedoms through the assertion of 'democratic' rights. At the same time, it is crucial to be aware of the resistance to such effects at containment in order to arrive at a nuanced and understanding of

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[76] Gleason, 53.
[77] Ibid.

the Cold War period.[78]

A person's sexuality was public currency and an individual would be feared if he or she had any reason to be secretive. Homosexuals were the hidden threat in a heterosexual society in the same way that communists were considered dangerous to a western nation. The Canadian government, secret service, and RCMP often linked homosexuality with communist subversion: "In right-wing, conservative, and often liberal discourse, homosexuals were either associated directly with communism and spying for the USSR or seen as an easy target for blackmail and therefore a risk to national security …."[79]

In his article "Constructing Gay Men and Lesbians as National Security Risks," Gary Kinsman examined the continuous and distinct fear of crossing boundaries and challenging pre-defined social divisions.[80] The place of homosexuals within the government matched the concerns that society had for the "other." The authority's classification and diagnosis of homosexuality as a pathological medical disorder resulted in a distinct link between the increasing faith in scientific progress and the fear of political subversion. Throughout the 1950s the RCMP created a special security division, the A-3 unit, to search for, locate, and identify homosexuals within the government and police ranks.[81] In his study of homosexual purges during the 1950s Kinsman discussed the difficulties associated with this process: "The A-3 unit produced a map of Ottawa using red dots to designate homosexual activity. The map was soon so covered with red dots as to be practically useless."[82]

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[78] Franca Iacovetta, "Freedom Lovers, Sex Deviates, and Damaged Women: Iron Curtain Refugee Discourses in Cold War Canada," in *Love, Hate, and Fear*, 78.
[79] Gary Kinsman, *The Regulation of Desire: Sexuality in Canada* (Montreal: Black Rose Books, 1987), 120.
[80] Kinsman, "Constructing Gay Men and Lesbians as National Security Risks, 1950-70," in *Whose National Security?* 143.
[81] Kinsman, *The Regulation of Desire*, 121.

The process of defining the homosexual was central to identification and eventual incrimination. According to the RCMP A-3 unit, a homosexual's identity was based on the concept that he or she was suffering from "failings of morality and character."[83] As with most scientific studies the process of identifying the homosexual had a very methodological approach. The identification process followed the pattern of establishing a hypothesis, in this case guessing that someone was a homosexual, and the various attempts at proving this theory through a previously established method of identification: "The RCMP construction of the homosexual was a textual matter built upon a number of different identifications of an individual as a homosexual. Only when people were placed in the confirmed category did they become a textually 'real' homosexual."[84] Essentially, the RCMP "needed to get a number of positive identifications of an individual to shift them into the confirmed homosexual category."[85] The process of identifying a homosexual was built upon three categories of definition, which were, incidentally, three levels of accusation: suspected, alleged, and confirmed.[86]

The process of weeding out suspected homosexuals and confirming them as "real" proved to be more costly of RCMP surveillance work than necessary. In an age that heralded technology to complete monotonous tasks, the authorities' focussed on constructing a machine to detect homosexuals. The result of these efforts was the 'fruit machine,' a failed attempt to diagnose homosexuality through a series of psychological tests which were apparently based on subconscious reactions and "the assumption that gay men and lesbians were either psychologically 'abnormal' or suffered from a 'disorder.' As in most other research the 'normality' of heterosexuality was assumed and homosexuality was defined as a problem."[87] In the early 1960s the Department of National Health and Welfare funded Professor F.R. Wake, of Carleton University's Psychology Department, to study and research detection tests and technologies regarding homosexuals in the United States.[88] The 'fruit machine,' a name given by the RCMP, was made up of a series of tests organized by Wake, based on his studies in the United States.[89] Among the tests that Wake found to be the most useful in his studies was the Pupillary Response test. This test tried to measure the subject's interest levels in a visual stimulus through his or her eye movements and pupil dilations. The eye's reactions were captured by "a machine which simultaneously projected a visual stimulus and photographed the pupil of the eye at half second intervals. The procedure was supposed to produce an involuntary 'response that cannot be controlled by the subject.'"[90] Pupillary Response tests on suspected homosexuals involved a series of photographs, ranging from nude figures to religious icons.[91] These examinations did not prove successful for a number of reasons. One reason was that the technology had to be constantly perfected in order for the project to make any sense: "the technology itself … had to be adapted to deal with people of different heights, with different sized pupils and different distances between eyeballs."[92] The second major reason for the project's failure was based on the misunderstandings of the human body and of homosexuality, since pupil dilations do not indicate 'desire' and hence cannot be used to define a person's sexuality. Despite its failure, the 'fruit machine' was an interesting project because of the assumptions upon which the whole experiment was built. Wake assumed that modern science and technology could effectively diagnose homosexuality, thus reflecting the era's popular assumption that homosexuality was a disease and that modern psychology and science were "fool proof."

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[82] Ibid.
[83] Kinsman, "Constructing Gay Men and Lesbians as National Security Risks," 143-4.
[84] Kinsman, Ibid., 147.
[85] Kinsman, Ibid., 146.
[86] Ibid.

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[87] Kinsman, "'Character Weakness' and 'Fruit Machines': Towards an Analysis of the Anti-Homosexual Security Campaign in the Canadian Civil Service," *Labour/Le Travail*, 35 (Spring 1995), 153-4.

[88] Kinsman, Ibid., 154.

[89] "These included … the Plethysmograph which measures blood volume in the finger by electronic or pneumatic means; the Palmer Sweat test, which responds to perspiration; the Projective Tests; Word Association Tests; the Pupillary Response Test; the Span of Attention Test, based on the time spent attending to various images … and Masculinity/Feminity Tests with all their gender and sexuality assumptions." Kinsman, Ibid., 155-6.

[90] Kinsman, Ibid., 156.

[91] Kinsman, Ibid.

Conclusion

Although Canadians tended to be more open than Americans in terms of political philosophy, popular literature and Canadian security still viewed communism as a threat. Korinek noted that Canadian magazines like *Chatelaine* "seldom demonized Russia or other communist countries, and for this 'balanced' reportage they often received negative mail assailing them for not providing a truly Canadian stand on these issues …."[93] Despite a slightly more tolerant policy, therefore, Canadians still exhibited a desire for a functioning and 'normal' society condemning all that was strange in the process. Canadian magazines like *Maclean's*, *Saturday Night Review*, and *Chatelaine* discussed communism and Soviet culture but they also discussed it as a serious threat.[94] Canadian society's reaction towards the Soviet menace was influenced by American anxieties but was by no means a northern replica of the United States in terms of Cold War fears. Culture in Canada during the 1950s exhibited similar patterns to the United States, but the nation was, by and large, creating its own images of comfort to cope with the increasing concerns of science and technology during this period, through popular culture in the form of magazines, children's material, and radio programs. The confusion of Canada's Atomic Era was composed primarily of dichotomies and the ever pressing desire to seek normalcy and comfort in an age of decreasing certainty and clarity. Comfort was defined by mythical images of perfection and the domestication of the atom. In the 1950s Canadians experienced the rapid development of science and technology. These innovations resulted not only in the fear and paranoia of civilians but their continual efforts to integrate the threats into society to create peace in a time of potential war through the achievement of social, moral, and political order. In this way the civilian's mixed perception of science and technology in 1950s society, evident in popular literature, indicated not only the diagnosis of abnormality but the combination of the civilian's faith in and fear of science.

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[92] Kinsman, Ibid., 159.

[93] Korinek, "'It's a Tough Time to Be In Love,'" 169.

[94] But there were still the numerous articles (such as Scot Young's 1951 article "Should I Keep My Commie Friend?" and Hal Tracey's "Canadian Shop Papers are Communist Poison!") which examined communism as a threat. Scot Young "Should I Keep My

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Commie Friend?" *Saturday Night Review* 67, November 10, 1951 and Hal Tracey "Canadian Shop Papers are Communist Poison!" *Saturday Night Review* 66, May 1, 1951.

Chapter 2: Civil Defence and the Ambiguity of Protection: Literature and Image

The idea of controlled anxiety shaped the Canadian civil defence experience during the early Cold War. The intense efforts of various governments and civil defence organizations to control the public's reaction to possible danger and to overcome the inertia of public apathy to the threats of the Cold War produced contradictory intents and results. To achieve compliance with civil defence objectives, the public had to be afraid of nuclear attack, but to avoid panic and instil civilian confidence in the authorities, they could not be too afraid. In minimizing the threat the government and civil defence organizations worked to reduce the perceived danger while diminishing apathy and stimulating obedience among civilians.

The meaning behind the civil defence practice and the idea of "ambiguity of protection" becomes clear through the examination of the contents and language used in Canadian civil defence handbooks, pamphlets, reports, and critiques from the 1950s and early 1960s. The first section of this chapter will define the meaning of civil defence in terms of objectives and federal policy. This will be broken into three topics: western Canada's civil defence background; the fallout shelter and the federal focus on evacuation instead of the shelter; and the reliance of civil defence strategies on maintaining a positive and optimistic public attitude in the face of potential nuclear disaster. The second section will study the nature of civil defence literature and the psychology of the Canadian public under the threat of a potential attack. It will also look at the schism between reality and the rhetoric found in civil defence material. The efforts of the government and civil defence organizations to prepare the public for attack indicated that the lack of information issued to the public was not a result of deficient scientific knowledge but of deliberate efforts to control civilian reaction to the possibility of nuclear war.

Civil defence strategies were a prominent feature of Canada's Atomic Age. Although there are numerous studies of various aspects of civil defence during the Cold War from the American perspective, very little has been written about the Canadian experience. Canada conducted various civil defence and EMO projects during the 1950s. Cities across the nation established groups to prepare for potential nuclear war while communities engaged in competitions with each other in a display of their civil preparedness.[1] The civil defence organizations in Canada also formed a college and various education programs to provide students with information on nuclear war and how to educate others about nuclear safety.

Despite public education about the threats of nuclear war there was an apparent lack of awareness within the material of the actual process of radiation poisoning. With little exception, nuclear physics did not develop much after the 1952 invention of the hydrogen bomb. By the late 1950s scientists knew of the dangers of radiation on the human body. One example of the availability of this information for the public, in terms of popular culture, was the 1957 novel *On the Beach* by Nevil Shute. The novel, a piece of fiction which described the world following a nuclear war, effectively illustrated the process of radiation poisoning on the human body:

> Nausea … That's the first symptom. Then vomiting, and diarrhoea. Bloody stools. All the symptoms increase in intensity. There may be slight recovery, but if so it would be very temporary. Finally death occurs from sheer exhaustion. … In the very end, infection or leukaemia may be the actual cause of death. The blood-forming tissues are destroyed, you see, by the loss of body salts in the

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[1] The federal government encouraged civil defence activities, but it left most of the planning responsibility to the individual provinces and municipalities across the country.

fluids.[2]

Although various scientific journals, often esoteric in nature (but available to the public nevertheless), recognized the severity of the risks they also offered a more optimistic than realistic view of nuclear survival: "Ironically, as nuclear bombs became more powerful and lethal throughout the decade, the rhetoric became more benign and reassuring."[3] A 1950 *Time* article, which discussed the nature of nuclear weapons, exemplified this method of information. Written before the construction of the hydrogen bomb, but after its conception, the article's primary intent was to provide material that "every civil-defense planner – and every dweller in a target area – should know: what an atomic attack would mean, and what to do about it."[4] The article provided information regarding the construction of the bomb, its primary components, and, naturally, what the bomb would do to civilization. The presentation of the threat of a nuclear attack was demonstrative of the method of alternately frightening and reassuring the public. First was the fear:

> Radioactive dust, from pulverized buildings, would be an added menace for those in the path of the wind. The central crater (as at Alamogordo) would be a no man's land for months, perhaps indefinitely, because of lingering radioactivity in fused steel and stone.[5]

This warning to the potential destruction of cities was then softened with the following statement which relieved the reader of some of the anxiety:

> Stories of widespread, permanent sterility are known to be groundless. Shortly after exposure, pregnant women are likely to miscarry, and children conceived in this period may be monsters. But after two or three months, the danger of such

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[2] Nevil Shute, *On the Beach* (New York: Ballantine Books, 1990),134.
[3] Laura McEnaney, *Civil Defence Begins at Home: Militarization Meets Everyday Life in the Fifties* (Princeton and Oxford: Princeton University Press, 2000), 37.
[4] (No Author), "Background for War" *Time*, April 21, 1950, 16.
[5] Ibid., 17.

> after effects wears off.[6]

The article did not specify what particular effects were to wear off with time; the miscarriages would presumably stop occurring, but what exactly that meant for the children born as "monsters" was not entirely clear. This statement was nothing more than an attempt to calm the public of potential dangers associated with nuclear radiation. If the authorities were to create fear in the populace without the possibility of a solution they would threaten the credibility of the government and scientific organizations. The message behind the article remained vague until the final paragraph which stated: "Scientists are confident that the U.S. will be able to test hydrogen bombs within a year or so. So will the U.S.S.R."[7] In order to support the American military and nuclear programs it was essential to remind civilians that the primary menace was not any nuclear bomb, but a nuclear bomb in the wrong hands.

The Canadian threat was different. In Canada, the nation's geographic location shaped the methods proposed by the defence planners. A nuclear war, regardless of its origin, was dangerous for Canada. Despite the threatening nature of the Soviets and communism, the real aggressor to Canadians in the event of a nuclear war would not be a superpower but the results of military science and technology. A 1957 civil defence evacuation report recognised this on page one:

> Canada's military authorities have now advised the Government that in any major war the North American Continent will be attacked with high-yield nuclear weapons from the outset with little, if any, warning. Accordingly, our civil defence policy must be so designed as to ensure the possibility in the event of a nuclear attack on this country.[8]

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[6] Ibid.

[7] Ibid., 49.

[8] (No Author), *Canada's Civil Defence Policy on Evacuation* (No Publishing Information, 1957), 1.

The technology available to military leaders at this time was enough to eliminate all life on the planet. In reality, the shelters would not provide sufficient protection for the civilian and evacuation would more likely bring about panic and mayhem.[9] As the evacuation policy report noted, there would also be little warning and thus insufficient time for civilians to prepare for safe evacuation. Military technology made civil defence a largely useless practice and yet there remained various persistent attempts to promote this method of protection. This promotion could have been a result of civic or national pride. It could have also been for a more psychological reason – perhaps an elaborate effort to stop the possibility of mass panic among civilians.

Technology was a threat to humanity, and, simultaneously, a saviour: in terms of medicine, science and technology acted as a new religion and the physician as the new spiritual leader. In his 1954 report, *Psychological and Social Consequences of Disaster*, Canadian physician J.S. Tyhurst stressed the need for leadership qualities in the physician. In emergencies and "times of stress" people would turn to the physician "for reassurance, guidance and advice,"[10] which were traditionally services of spiritual leaders. Tyhurst demonstrated the position and role of science and technology in society and the accompanying expectations placed upon them by civilians:

> Following a disaster remember that you are not only an individual with a family –

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[9] In an article entitled "If the Russians Attack Canada," journalists Wallace Goforth and Sidney Katz examined the complications related to civil defence and the importance of civilian preparation for war, or retaliation. Goforth and Katz discarded evacuation, particularly from large cities, on account of traffic problems and ensuing mayhem. Wallace Goforth and Sidney Katz, "If the Russians Attack Canada," *Maclean's*, June 15, 1951, 9.

[10] J.S. Tyhurst, MD, *Psychological and Social Consequences of Disaster "What Should the Doctor Do?"* (Montreal and Ottawa: The Department of Psychology, McGill University, and The Defence Research Board, 1954), 19.

> possibly injured, possibly bereaved – *you also fill a social role* – that of physician – to which people turn instinctively in times of distress.[11]

The physician's ethics would change in the event of nuclear war. Triage had previously been a debated component of military medicine, but now with the prospect of massive radioactive destruction on a population it rose to an inescapable practice. Physicians could face countless situations challenging their professional ethic. Because of potential birth defects the majority of the pregnant population would undergo miscarriages and because of the severe bodily harm resulting from a nuclear bomb, either from blast or radiation, many civilians might seek euthanasia.[12] In the case of a nuclear attack damages would not be limited to the battlefield nor to the time of attack since radiation would seep into the environment of the targeted area and into generations of organisms following the attack.[13]

Tyhurst's report also emphasized the dependence on modern technology through the portrayal of the importance of preserving technology in society. He referred to technology not only in terms of medicine but communications, through resources such as radio and television. Tyhurst transferred the duality of technology and science in society to another level. Society needed science and technology, in the form of communication, in order to combat the damaging effects of military weapons on civilization:

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[11] Tyhurst, 27. (Original emphasis)

[12] Victor W. Sidel, H. Jack Geiger, and Bernard Lown, "The Physician's Role in the Post Attack Period," *The Fallen Sky: Medical Consequences of Thermonuclear War*, ed. Saul Aronow, Frank R. Ervin, and Victor W. Sidel (New York: Hill & Wang, 1963), 37.

[13] In 1963 a group of American physicians published a series of essays, in a book called *The Fallen Sky: Medical Consequences of Thermonuclear War*, which concerned methods and debates of post-attack medicine. The essays were similar to Tyhurst's report in regard to the changing role of the physician in the event of a nuclear war. The article, "The Physician's Role in the Post Attack Period," uses personal accounts of Japanese physicians and their experiences in Hiroshima and Nagasaki in 1945 as evidence or a psychological example of the ethical problems surrounding the doctor's occupation. One physician in particular, Dr. Takashi Nagai of Nagasaki, was an officer of the College First Aid and Rescue Committee. Well aware of his responsibility to the citizens of Nagasaki, two days passed before Nagai was able to care for his own family. When he was finally able to return home it was only to discover that his wife had died in his absence. In terms of medical responsibility Nagai believed he had failed the most basic of physician responsibilities: to care for his own family: "'I discharged my responsibility. What will my reward be in the eyes of [my children] when they are grown.'" Ibid., 36.

> Previous to disaster, for example, it is not enough to communicate a warning. Once this has been given, communication must continue – a strong need for information and guidance will have been immediately established. *Afterwards, the guidance, reassurance and social cohesion provided by good communication can prevent the distortion and confusion that leads to impulsive, irrational behaviour on the part of the individuals and groups.*[14]

Civil defence plans indicated the continual efforts of governments to react against the new military developments of the dangerous world following World War II through the escalation of a technological dialectic. But the competitive military counterparts were often devised "too late" and the hostility between the superpowers only increased: military technology moved so quickly that rapid obsolescence followed every form of defence (the most prominent being the early warning systems in the Canadian Arctic as discussed in the Introduction). Civilians also experienced an uncertainty about the expectation and reality of the situation: was nuclear war something to worry about? In her book *Panic Diaries*, Jackie Orr gave a personal and psychological account of the society surrounding the anticipation of nuclear attack on the United States. She discussed the mixed reactions to nuclear war and the bomb and the civilian panic which accompanied the use of nuclear arms. Her statement that "[t]he new weapon's ultimate power is psychological" captured the essence of early Cold War mentality.[15] Orr demonstrated the various methods and contexts which orchestrated and managed panic in society. The question remained as to whether or not there was an actual threat to civilians, and if so, what could be done to prevent it short of frightening the nation into uncontrollable hysterics. Here lay the crux of the ambiguous relationship between science, civil defence, and social life.

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[14] Tyhurst, 20. (Original emphasis)

[15] Jackie Orr, *Panic Diaries: A Genealogy of Panic Disorder* (Durham & London: Duke University Press, 2000), 85.

1. The Meaning behind Civil Defence Practice

Civil defence practice was contingent on the nature of the anticipated battle. The battlefield of a nuclear attack would be remarkably different from that of any previous battle in history. The civilian stood at the centre of this military change. The development of Total War had already altered the civilian's role in military conflicts during the twentieth century, but the events of 1945 effectively established the civilian as a constant hostage to potential nuclear annihilation. Previously a bystander, a provider of provisions, and an innocent victim of unfortunate circumstances related to combat, the citizen became the central focus of the Cold War. Unlike in previous conflicts where most civilians were expected to survive, the civilian of a nuclear age was expected to carry on survival of the human species. The survival of humanity had become a serious concern for the military and civil defence planners. Where in previous wars the civilian was responsible only for the protection of his- or herself, in the event of a nuclear war he or she would have the responsibility to carry on the society of a fallen nation. Governments, therefore, cast civil defence as central to human survival.

In Canada, the government's focus on civil defence was less defined than that of the American organizations. Canadians were caught between the image of comfort and affluence which came to many citizens during the 1950s, and the reality of anxiety and financial woe in the immediate postwar society. Canada was also caught between the capitalist ideology of the West and subsequent distrust of the Soviets, and the continuing distaste for American culture and nationalism which continued to escalate through the Cold War.

Canada had never experienced a modern war on its own soil[16] so natural disasters provided the closest experience for civil defence planners to use as precedent for a nuclear attack. The civil defence organizations and the EMO's duties were often associated with or understood in terms of fires, floods, and earthquakes.[17] Tyhurst's report exemplified the process of equating civil defence with natural disasters:

> A civilian catastrophe can be acute and sudden – as in an earthquake, in a fire, in a high explosive saturation or in an atomic attack; or, it may be drawn out – as in a serious flood, a succession of air-raids, or a bombing followed by a squelae such as lingering radiation.[18]

Civil defence publications featured issues related to natural disasters at the forefront of reports and proposals, accompanied by the possibility of nuclear war which was often understood rather than openly stated. In his Master's thesis, historian Marijan Salopek wrote of western Canadian civil defence and the subsequent anxieties during the Korean War (1950-1953). His study looked at the impact of the war on the mindset of Canadians and how it threatened the image of a peaceful future and consequently symbolised the dawning realisation of the threats of the early Cold War era. In this way, the war in Korea was a physical embodiment of the early Cold War. Until the Cuban Missile Crisis a decade later, the two superpowers lived uneasily with the constant uncertainty of the other's intentions with the exception of the first proxy war (i.e. the Korean War). Every other conflict of this period was merely implied. Civil defence planning for a nuclear war, therefore, was based on purely theoretical conditions.

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[16] This is to say that although there were several wars on Canadian soil over the centuries, tribal wars between First Nation groups, the Iroquoian Wars of the seventeenth century, the American invasions of the nineteenth century, along with the various rebellions, there was never a war exhibiting the military technology of the twentieth century.

[17] Marijan Salopek, "Western Canadians and Civil Defence: The Korean War Years, 1950-1953," *Prairie Forum: Journal of the Canadian Plains Research Centre* 14, no. 1 (Spring 1989), 76.

[18] Tyhurst, 1.

In order to raise civil defence to a viable level of security for Canadians, the federal and provincial governments divided the program's responsibilities. Throughout the 1950s the federal government met with the provinces in an effort to effectively distribute civil defence tasks. The Federal Civil Defence Conference in February 1951 defined the terms of the division of labour throughout Canada.[19] The government representatives decided that civil defence organizations within the federal government would be responsible for the armed forces and other national organizations. This arrangement, in theory, would be coordinated with provincial and local authorities, who would, in turn, design plans to fit their respective province or municipality. According to the arrangement, the federal government designed civil defence policy and resources for the provinces. In addition to this, Ottawa took charge of the national and international civil defence cooperation plans, the allocation of officers for civil defence practice, and the distribution of resources, such as medical supplies, technological instruments, respirators and protective clothing, municipal warning systems, manuals, and badges.[20] The federal government was also responsible for the prevention of sabotage against federal works and the provision of civil defence education and atomic, biological, and chemical warfare (ABC) courses for civilians.

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[19] Salopek, "Western Canadians and Civil Defence," 78.

[20] Few Canadian cities were equipped with air raid sirens or any other early warning network during the Korean War: "Under the terms of the 1951 Federal Provincial Civil Defence Agreement the federal government was responsible for allocating sirens to designated target areas. Supplying these sirens was a difficult matter, Edmonton receiving its twenty sirens only after the Korean War had ended." Ibid., 82.

The provincial responsibilities lay primarily in working directly with municipal authorities. Provinces were to develop their own civil defence plans, establish provincial civil defence schools, and allocate the equipment received from the federal government. An example of the provincial and municipal level of Canadian civil defence programs was the Canadian Mayors Civil Defence Conference in 1958. The convention, described in a handbook of the same title, provided mayors from across Canada with an opportunity to compare, compete, and converse with each other and program organizers over the latest civil defence developments. The conference booklet also featured the varieties of community civil defence programs and activities across the country. Such exercises included emergency rescue committees, courses available to civilians, construction projects, broadcasting organizations, new sirens and warning systems, decontamination drills, and disaster simulation exercises.[21]

Alberta's role in Cold War civil defence was particularly strong in the 1950s. By 1955 more than 25 thousand Albertans had been trained in civil defence.[22] Salopek wrote: "The Alberta government made substantial headway in developing a provincial civil defence program, and by 1952 it was well ahead of the other [western] provinces."[23] He went on to note that in terms of advocacy for civil defence during the Korean War,

> [t]he most outspoken advocates … tended to be found in British Columbia, and, to a lesser extent, Alberta. Of the four western provinces, only these two established elaborate civil defence programmes, while Saskatchewan and

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[21] "Civil Defence Canada – Canadian Mayors Conference," 1958, Civil Defence, "Department of the Environment," acc. no. 72.289, Provincial Archives of Alberta, Edmonton.

[22] Salopek, 77.

[23] Salopek, 78.

Manitoba did virtually nothing at all.[24]

Alberta's prominent role in early Cold War civil defence programs was a result of Premier Manning's concern for the safety of the province from Soviet attack.[25] Although not as populated as eastern provinces, Alberta, and cities like Edmonton in particular, were deemed primary targets on account of their wealth and the presence of American military bases. During World War II, Edmonton flourished as an urban centre when the American troops flooded north to Alaska, using the city as a stopping point along the way. The Alaska Highway, constructed during this time, also added to the wealth of the city. Military bases remained in Alberta following the war and warning stations were built in the northern part of the province.[26] The possibility of attack, therefore, was a prominent concern for provincial figures and civil defence planners.

The fallout shelter was widely publicised in North America as the most viable form of protection against nuclear attack. In many ways the shelter served as a symbol of the postwar era: it was designed to protect the civilian in an age that celebrated the individual and the nuclear family. It was the civilian who, in the event of a nuclear holocaust, would preserve the life of a nation and a society. Anthropologists, like civil defence advocate Margaret Mead, emphasized the importance of maintaining the

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[24] Salopek, *A Survey of Western Canadian Concerns and Fear During the Korean War, 1950-1953*, Master of Arts Thesis (University of Alberta, Department of History and Classics, 1984), 139.

[25] Salopek, "Western Canadians and Civil Defence," 79.

[26] One of the best examples of this is the community of Beaverlodge in North-western Alberta. Close to the British Columbia boarder and located alongside the highway leading to Alaska, the small rural community was host to an American military base during World War II. Following the war, in the early 1950s, the government and Canadian military constructed a Pinetree early warning station a couple of kilometers east of the community on Saskatoon Hill. This station was later dismantled during the 1980s. Margot Hervieux, *Saskatoon Mountain: A Discovery Guide* (Grande Prairie: Peace Parkland Naturalists, 2005).

American nation's tradition and culture by preserving it in the fallout shelter. At a 1961 symposium, Mead suggested that certain newlyweds throughout the United States should be provided with a fallout shelter honeymoon so that "at any given point in time, a reasonable number of the breeding population would be protected from annihilation in event of an attack."[27] The sentiment of ideological survival of a nation through its people was also expressed by Georgia Senator Richard Russell who stated: "'If we have to start over again with another Adam and Eve … then I want them to be Americans and not Russians, and I want them on this continent and not on Europe.'"[28]

American historian Elaine Tyler May opened her study of American Cold War culture, *Homeward Bound*, with a 1959 *Time* article publicizing the shelter honeymoon of a young couple.[29] The article combined the era's themes of domesticity and militarization reestablishing the nature of Atomic Culture and the popularization of the fallout shelter. The media's cozy portrayal of the shelter was an attempt to convince civilians that the shelter was an attractive addition to the suburban home which would, consequently, maintain the nature and traditions of western culture.

The Cold War was as, Orr stated, a psychological war.[30] Psychology defined the concerns of officials for the health of the nation. During the 1950s and early 1960s, several psychological tests were conducted on inhabitants of fallout shelters in an effort to determine the effectiveness of civil defence measures on the North American population. In the United States, physicians conducted a variety of tests on fallout residents. The subjects of these psychological tests ranged from small families to large groups of strangers. The University of Georgia, for instance, conducted twelve public shelter studies between 1962 and 1967 with subject groups ranging from 30 to 1,000 individuals.[31] Tests were not always psychological studies of the individuals involved but sometimes worked as propaganda to promote the importance of civil preparedness. In order for the organisations to sell the idea of civil defence to the public the program had to be an attractive commodity for the postwar world. The media did not lose any opportunity to promote a stay in the shelter as a family adventure.

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[27] P. Herbert Leiderman, M.D. and Jack H. Mendelson, M.D., "Some Psychiatric Considerations in Planning for Defense Shelters" in *The Fallen Sky*, 44-45.
[28] Sarah A. Lichtman, "Do-It-Yourself Security: Safety, Gender, and the Home Fallout Shelter in Cold War America" *Journal of Design History* 19, no. 1 (2006), 40.
[29] Elaine Tyler May, *Homeward Bound: American Families in the Cold War Era* (New York: Basic Books, Inc., Publishers, 1988), 3-5.
[30] Orr, 85.

In September 1961, CBC interviewer Norman DePoe demonstrated the propagandist opportunities of the shelter in the media through a television program on CBC Newsmagazine.[32] DePoe interviewed the McCallum family of Toronto who, for seven days stayed in a thirteen-foot long fallout shelter on the CBC grounds in Toronto. The interview was short, but in the few minutes it took for DePoe to greet the family, the conflicting sentiments of the era were made clear by the protesters in the background. In plain view of the camera, the anti-bomb protesters were referred to throughout the interview, first as the McCallum family's "welcoming committee" in DePoe's introduction to the interview, and then by Mr. McCallum who mentioned that he might consider signing the protesters' petition because, as he stated, "I hope no one ever has to live in one of these things."[33]

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[31] Kenneth D. Rose, *One Nation Underground: The Fallout Shelter in American Culture* (New York and London: New York University Press, 2001), 164.
[32] Norman DePoe, "CBC Newsmagazine" <http://archives.cbc.ca/IDC-1-71-274-1464/conflict_ war/cold_war/clip5> September, 17 1961 [accessed November, 9 2007].
[33] Ibid.

The interview was, however, optimistic in nature. Amid the protesters' "boos" and chants in the background, the onlookers broke into a smattering of applause at the sight of the McCallum family emerging from their shelter. Mr. McCallum, when asked about how the family faired during its week in the shelter, happily proclaimed: "Not only did we survive, but if you look at the children, we thrived."[34] When asked by DePoe if he was now convinced they could survive the "real thing," McCallum responded, "Absolutely. Absolutely." The McCallums' life in the shelter was obviously not an overly pleasant experience, however the program succeeded in portraying the ease and possibility of surviving a nuclear attack. The interview was interrupted briefly by an EMO presentation of *The Eleven Steps to Survival* which began by stating that despite the dangers of nuclear war, survival was possible.[35]

The image of the nuclear family and definition of gender roles closely accompanied the expectation for survival. The interview portrayed Mr. McCallum as the authority of the family: while DePoe and the mayor of Toronto greeted Mrs. McCallum and her children with superficial pleasantries, DePoe questioned Mr. McCallum on the technicalities of life in the shelter and the maintenance of the children's school education. DePoe later questioned Mrs. McCallum on the food preparation and housekeeping in the shelter, and then asked Mr. McCallum if he ate well during his stay. The interview finally ended with the presentation of gifts for the children: a toy crane for the boy and a doll for the girl. The programme did not reveal how the McCallums were chosen for the exercise but their appearances most likely played a major role in the selection process. The McCallums, whether or not they were aware of it, were a visual representation of the

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[34] Ibid.
[35] Ibid.

"normal" nuclear Canadian family. While Mr. McCallum carried himself with the authority of the head and father of the household, Mrs. McCallum, although quiet and evidently exhausted from her experience in the fallout shelter, was a calm and maternal figure. The children, a boy and a younger girl, completed the composition of the nuclear family. In all manners the McCallum family provided the viewer with a sense of relief, not only in their ability to survive a week in a small overheated shelter, but by their normal appearances.

The shelter, simultaneously, catered to the individual family and its income. Ranging in size, capability, and cost, the shelter was the responsibility of the individual family rather than of the government. Consequently, although the shelter characterized the paranoia of the Atomic Age very few Canadians and Americans built shelters in their basements or backyards. The government constructed group shelters, as rare as they were, in major cities and suspected target areas, often in basements of government buildings or in public areas such as subway systems. Ottawa hosted the construction of the famous "Diefenbunker," the massive underground shelter system in Carp, Ontario built between 1959 and 1962 to house Prime Minister Diefenbaker and other important government officials.[36] These instances aside, however, the fallout shelter was primarily an indulgence of the wealthy. The inability of communities and governments to protect civilians by providing shelters was based on a lack of funding:

> Shelter construction required a substantial capital investment which the government was not prepared to make. A large portion of the government's civil defence budget was spent on items such as first-aid kits, training aides, blankets, boots, coveralls, steel helmets, stretchers, anti-gas suits, respirators, radiation

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[36] Bill Manning, "Beyond the Diefenbunker: Canada's Forgotten 'Little Bunkers'" *Material History Review* 57 (Spring 2003), 79.

detectors and wireless equipment.[37]

As one editor noted, the money that was spent on civil defence was "barely enough to cover the cost of supplying the residents of a major Canadian city with gas masks."[38]

An evacuation strategy, on the other hand, could save more individuals through an efficient and realistic civil defence operation. Construction and design planning would not be an issue for the government and municipal organizations. Rather, civilian cooperation and coordination, along with the successful management of panic would prevail in the planning process. As with the civil defence programs in general, an evacuation policy would, in theory, be overseen by the federal government but would be the responsibility of the provinces and municipalities across the country.

According to the *Canadian Civil Defence Policy on Evacuation* (1957), urban evacuation was divided into four phases. The phases were defined according to the nature of the population, the size of the centre, and the likelihood of the centre being a target for attack. Phase "A" was for "high target" areas and would be enacted well before an attack, but at a time of apparent threat, in order to alleviate the stress of removing the entire urban population at the sound of the alarm. The process of phase "A" was reminiscent of the population evacuation plans for London in World War II: the population "not absolutely necessary to the life of the city – the mothers, the small children, the sick and the elderly people" would be removed from the centre to surrounding communities that were not targets.[39] According to the evacuation policy, the process would apparently take from six to twelve hours to complete.

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[37] Salopek, "Western Canadians and Civil Defence," 83.

[38] Salopek, *A Survey of Canadian Concerns and Fears*, 5.

[39] *Canadian Civil Defence Policy on Evacuation*, 6-7.

Centres were to enact phase "B" upon the detection of approaching enemy forces. The second phase was designed to constitute the withdrawal of the remaining population, with the exception of police, fire, and civil defence detachments. These forces would remain on the outskirts of the centre, with adequate shelter, most likely underground, to ensure the city's security and to control the damage as much as possible. This phase of evacuation was supposed to take approximately three hours to complete, "on the basis of a vehicle speed of 25 miles per hour and a density of 1,000 vehicles per hour past a point per lane of traffic."[40] Phase "C" would come into effect for the civil defence activity following "the bursting of a nuclear weapon."[41] More than the previous two sections, phase "C" was designed for the smaller centre. This phase was based less on federal organization and more on provincial and municipal responsibility. The provinces and related municipalities assumed the responsibility of discerning the likelihood of an attack on communities and decided which centres should have phase "A" or "B" evacuation plans. Phase "C" communities were those that did not have the "A" or "B" process and which, in the event of an attack, had to deal with the consequences of fallout. These communities were perhaps meant to receive the "refugees" of "A" and "B" centres. Phase "D" was a post-attack process. According to the report, it was primarily centred on the community's rehabilitation and the reunion of families separated during attack or through the evacuation process. Phase "D" would be enacted through the course of the days and weeks following an attack and would concentrate on the relocation of civilians according to the level of damage in their communities. The division and designation of the four phases were referred to in evacuation pamphlets as either "target areas" or "receiving/reception communities."[42]

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[40] Ibid, 7. (Unfortunately the evacuation policy does not provide supporting sources to account for the evidence of statements such as these. The writers of the report could have drawn this data from practices like Operation "Lifesaver.")

[41] Ibid.

As with the fallout shelter, evacuation brought about a series of preparation problems. Officials, for instance, considered Vancouver as one of the nation's main target areas. The city, however, had only one rail line available for evacuation. The warning system and the rapid obsolescence of the DEW Line with the introduction of the ICBM technology also proved to be a challenge. Evacuation, no matter how efficient and organised, still required extensive preparation and sufficient time for professionals and civilians to enact the process. Despite these problems, "evacuation and dispersion were firmly entrenched as the appropriate civil defence responses to an attack on Canada."[43]

Despite its apparent ineffectiveness, civil defence planners continued to emphasize the importance of the fallout shelter. EMO pamphlets and booklets issued to the Canadian public well into the 1960s featured images of people surviving radiation by hiding in ditches and under bridges. The fallout shelter, for one, transferred the responsibility of survival from the government to the civilians. The shelter was an attractive option in that it was the survival method of the individual – the individual family could control its own fate rather than depend on the government or the hospitality of other communities in a time of war. Finally, despite the apparent lack of knowledge concerning fallout and radiation in the event of an attack, there was a wealth of information available that was not pressed upon the nation. The fallout shelter, as with the nature of information presented to the civilian, was established in an effort to control potential panic.

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[42] (No Author), *Welfare Tips for Survival*, (No Publishing Information, 1961), 7.
[43] Salopek, "Western Canadians and Civil Defence," 83.

2. Civil Defence Literature and the Canadian Public

Throughout the 1950s and early 1960s the federal government and civil defence organizations issued numerous pamphlets regarding civilian safety in the event of a nuclear attack (in the form of both fallout shelter manuals and evacuation plans). In an endeavour to acquaint the Canadian public with the possibilities of nuclear warfare, the government and civil defence organizations used the shelter as a visual model of self preservation. A letter from Alberta Civil Defence Co-ordinator Arnold J. Lavoie written on June 30, 1960 illustrated this attempt at introducing the Canadian family to the fallout shelter:

> Full scale models of the family fallout shelters suitable for a family of five, described in this booklet, will be on display at the Calgary Stampede and the Edmonton Exhibition. The model in Calgary will be constructed in the Big Four Building, while the one in Edmonton will be located in the Manufacturer's Building.[44]

Lavoie wrote his letter in reference to the handbook *Your Basement Fallout Shelter* (published a year later in 1961). The civil defence manuals and pamphlets' presentation of the use of nuclear imagery familiarized the public with the possibility of warfare. The attempt to calm the public while creating awareness added to the idea of ambiguous protection. Manuals featured conflicting images of how to protect oneself against nuclear attack. The civil defence booklets of the early Cold War period focussed primarily on the *image* of personal protection against nuclear war. The idea of controlled panic represented the nature of government propaganda surrounding science in the simultaneous messages of provocation and reassurance.

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[44] Arnold J. Lavoie, letter to Premier Manning, the Provincial Deputy Ministers, Members of the Legislative Assembly, and ACDHQ Committee Members, acc. no. 72.289, PAA.

The concern for public apathy was evidently behind the civil defence literature of the 1950s. An apathetic nation would not survive a nuclear attack or an ideological invasion; it would be, in its time of need, a weak and susceptible nation vulnerable to subversion. The government believed that the most effective remedy to apathy was fear and this was administered by the recognition of two particular enemies: the Soviets and the nuclear bomb. The Soviets, or the "other", were seen as the ultimate enemy of the Cold War. Directly linked to the Soviets, however, was the nuclear bomb. The nuclear bomb was essentially *not* a threat it if were *not* controlled by the enemy and so, under the Soviets, the nuclear bomb was a primary example of science and technology "gone bad." Two examples which demonstrated these enemies were Wallace Goforth and Sidney Katz's article "If the Russians Attack Canada," and the radio program "Here's Health." Both examples demonstrated the endeavours to create awareness about the possibilities of annihilation by nuclear attack.

"If the Russians Attack Canada" was a multi-paged and fully illustrated article in a 1951 edition of *Maclean's* magazine. The article mapped out the expected target areas of Canada. It began by addressing the idea of a new type of war: one that would take place *over* Canada rather than on a distant continent. Goforth and Katz stressed the importance of Canadian home defence to "ensure Canada's survival if she is attacked from abroad."[45] The article then emphasized the importance of civilian preparation in the event of a possible nuclear war with its opening premise:

> If war comes with Russia the ABCs of military strategy decree that at least nine Canadian cities will almost certainly be hit by atomic bombs. Canada offers Stalin tempting secondary targets too. Here's what we can expect from such an attack, what we can do to protect ourselves, and what we haven't yet begun to

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[45] Goforth and Katz, 7.

do.[46]

This plan was then articulated using a large map with the following heading in bold: "The Russians Could Attack from Our North West, Striking at Canadian Targets on their Way to 50 Key Centres in the US."

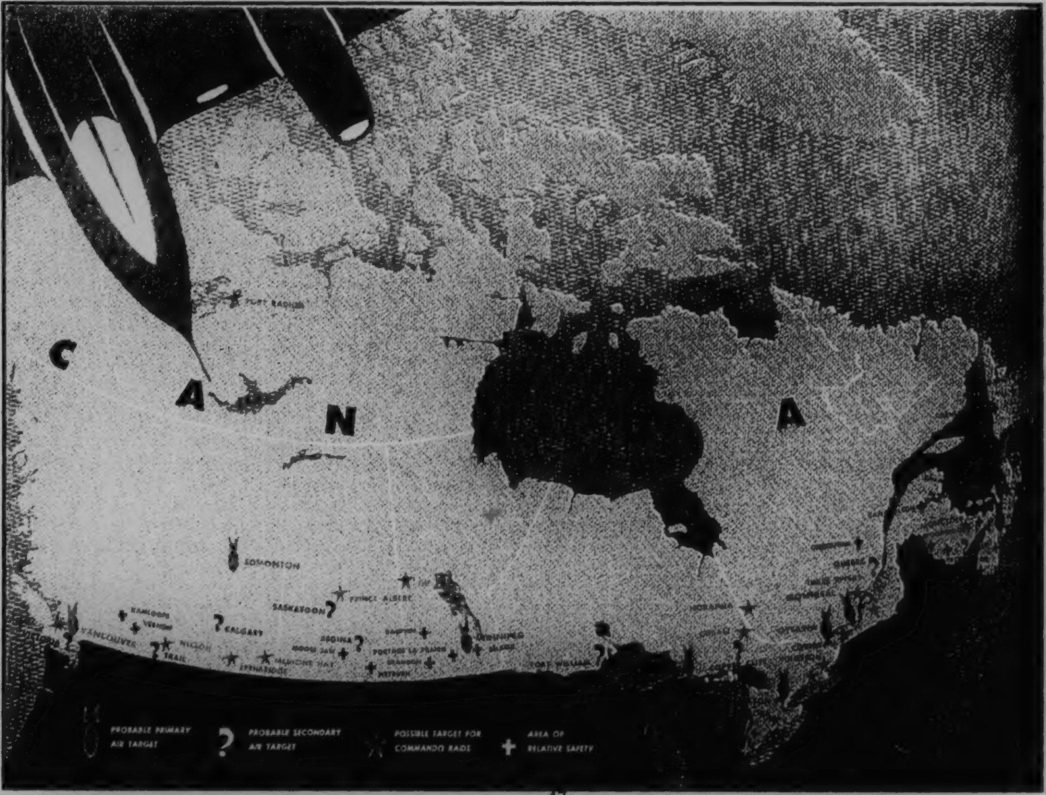
C
A
N
A
PORT RADIUM
EDMONTON
SASKATOON
PRINCE ALBERT
KAMLOOPS
VERNON
CALGARY
VICTORIA
VANCOUVER
NELSON
TRAIL
LETHBRIDGE
MEDICINE HAT
REGINA
MOOSE JAW
DAUPHIN
PORTAGE LA PRAIRIE
BRANDON
WEYBURN
WINNIPEG
SELKIRK
FORT WILLIAM
NORANDA
QUEBEC
MONTREAL
OTTAWA
KINGSTON
PROBABLE PRIMARY AIR TARGET
PROBABLE SECONDARY AIR TARGET
POSSIBLE TARGET FOR COMMANDO RAIDS
AREA OF RELATIVE SAFETY

Fig. 3[47]

The map had four legends which marked Canada's major cities ranging from "Area of relative safety" to "Possible target for commando raids" to "Probable secondary air targets" to "Probable primary air targets."[48] This last legend, in the shape of a falling bomb, marked nine cities including Vancouver, Edmonton, Winnipeg, Sault Ste. Marie, Windsor, Toronto, Ottawa, Montreal, and Halifax. The map was followed by a presentation of six steps that the Russians could follow during their attack on North America and the writers addressed the following questions:

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[46] Ibid.
[47] Ibid., 8.
[48] Ibid.

> What will be the nature of an enemy attack on Canada? To what extent will atom bombs be used? What are the most likely targets in Canada? What casualties can we expect? Can Canada be knocked out by blows from the air? How well can we protect ourselves militarily? What preparations can civilians make to defend themselves, their families and their communities?[49]

The plans of attack were elaborately described in detail, expressing a certainty of future war.

Essentially Goforth and Katz achieved two things with their article. The first was that they recognised the possibility of a carefully planned Soviet attack on Canada. Goforth and Katz analysed not just the likelihood of attack but the method and manner of technology used in the process:

> The war would likely begin with a predawn sneak attack by fifty or sixty Russian planes bearing A-bombs. Perhaps nine of these bombs would be dropped on Canadian targets; the rest would be destined for the United States.
> The Russians would probably fly down from North Cape in Siberia (not to be confused with the Norwegian North Cape) and carefully skirt our advance-warning devices.[50]

The article's main point, however, was to illustrate the importance of a well informed public – one that knew what to do in the event of war: "A straight-forward assessment of the risks we may have to face, based on the best available information, is likely to be the best antidote for public apathy and hysteria."[51] Goforth and Katz's view of civil defence was not survival but civil preparedness for a post-attack society ready to retaliate with a similar attack against its opponent. The article offered little instruction for proper protection against a nuclear attack and it discarded both plans for evacuation and shelters as unreasonable methods of civil defence. Rather, the writers stressed the importance not of hiding but of maintaining military and national strength: survival of nuclear war was not worth the trouble if the war was lost. In this regard the article was more reminiscent of World War II civil defence than that of a nuclear war.

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[49] Ibid.
[50] Ibid.
[51] Ibid.

Goforth and Katz's analysis of the nuclear war over Canada hardly provided any option for the future other than civil defence. The article itself presented the mixed reaction of Canadians to the possibility of nuclear war by first remarking on the apparent nervousness of Canadians to any manner of disruption (from a forest fire in Alberta to a factory explosion in Sarnia, Ontario) and then addressing the general apathy expressed by Canadians in defending themselves against an attack.[52] The article featured various arguments for civil defence practice stating that "[c]ivil-defence can be costly and inconvenient. … But there's abundant evidence that this is a gamble we can't afford to take. For if we take it – and lose – we may be throwing away for all time our future as a free and independent nation."[53] The authors of the article recognized that Canadians were not just under the threat of a Soviet attack but that there was also the possibility of losing the Canadian national image either to the Soviets or to some other power. In this way the article promoted a nationalist agenda, explaining to Canadians that they could not afford to be passive about the possibility of war, nor could they pretend that Canada did not need to concern itself with what was otherwise an American-Soviet war. Canada was part of the conflict and the planning process and Canadians, therefore, had to be prepared to at least defend themselves through civil defence. They would also have to choose sides but retain their national freedom at the same time. The authors, by stating that civil defence was the only way to survive the possibility of a destroyed nation, attempted to mobilize civilians by fear and alarmist tactics.

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[52] "People's nerves are edgy: last fall a blanket of smoke which drifted over many eastern cities from Alberta forest fires touched off thousands of anxious inquiries on whether it was made up of radio-active clouds from an atomic explosion. A week ago, when there was an explosion at the Sarnia synthetic-rubber plant, thousands of residents rushed into the streets in nightclothes, convinced that the city was being bombed." Ibid., 7.
[53] Ibid., 68

Controlled panic was also evident in the limited and carefully regulated nature of information provided to the public. The radio program "Here's Health" was an example of such a practice. The program, which was produced in the hopes of providing Canadian listeners with "practical information on what to do in the event of an attack," was regularly broadcasted around the country on over seventy-five English and twenty-nine French radio stations.[54] "Here's Health" also provided "short informative plays such as 'Preparing for Atomic Attack,' 'Bombed Out,' 'Emergency Feeding in Disaster,' 'Panic,' 'Civil Defence in Schools,' and 'When Disaster Strikes.'"[55] The program's objective to help the listener deal with maladies associated with nuclear war and radiation was later parodied in Max Ferguson's radio show "Rawhide." In his "Nuclear Warfare Can Be Fun" broadcast, Ferguson referred to the Canadian government's public information broadcasts on nuclear health by broadcasting old farm bulletins and replacing the names of various diseases with "radiation disease."[56] In his hyperbolic humour, Ferguson's parody characterized the mixed messages sent by the government and civil defence programs in order to influence the Canadian public's reaction to the possibility of nuclear attack.

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[54] Salopek, "Western Canadians and Civil Defence," 80.
[55] Ibid.
[56] Max Ferguson, "Nuclear Warfare Can Be Fun," <http://archives.cbc.ca/IDC-1-71-274-1464/ conflict_war/cold_war/clip7>, November 9, 1961 [accessed September 20, 2007].

In contrast to their idea of controlled panic during the early Cold War, the government and civil defence organizations also urged unwavering optimism in the face of possible nuclear destruction. The faith in technology sat at the centre of the sense of hopefulness which sprang from the simplistic information on nuclear safety issued to civilians across Canada. Yet, the profound sense of optimism found within these endeavours suggested that regardless of the damaging forces of the military technology, there was the ever hopeful possibility for salvation through technology, once more emphasising its double-edged existence. Early warning systems for example would aid Canadians in combating, or at least identifying the threat of a nuclear bomb. The 1957 evacuation report noted that regardless of the short amount of warning, Canadians would, in theory, have sufficient time to evacuate from the targeted cities: "The minimum warning will be three hours with the DEW Line operation."[57] In reality, however, three hours would be the maximum warning time for most Canadian cities because of the development of the ICBM. On a smaller scale, technology would function in the form of manual devices which would detect dangerous radiation levels in the environment.[58]

The warning systems, both large and small, provided civilians with a sense of comfort in spite of unprecedented danger. In reality, there were limits to this optimistic trust in technology. Tyhurst, in his lecture regarding the psychological impact of nuclear war on the civilian and, ultimately, the physician, warned against the empty plans which could potentially terrify civilians rather than aid them in preparing for a nuclear attack:

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[57] *Canadian Civil Defence Policy on Evacuation*, 4.

[58] Examples of these are found in the 1954 civil defence course pack: pocket dosimeter, radiation dosage calculator, glass dosimeter, film badge dosimeter. The course pack goes into extreme detail of the designs with a variety of diagrams. Civil Defence School: Civil Defence Radiation Monitoring Course, "Emergency Measures," 1940-1962, acc. no. 72.289, PAA.

> The element of planning and the period of warning are important, but previous information and anticipation are not always necessarily favourable. Their effect depends upon how the information and warning are given. While it seems clear that warning should allow people to take measures to protect themselves, it is just as clear that warning followed by anticipation may also key people to an intolerable pitch of anxiety and tension. The period of anticipation if at all prolonged, should therefore be taken up with concrete activity which allows some draining off of tension and eliminates a period of inactive waiting. … Previous information and planning can also be unfavourable if delivered at intervals in a startling or alarmist fashion, or if they deal in generalities without concrete responses to what should be *done*.[59]

What was deemed a tool for reassurance and relief from anxiety could, according to Tyhurst, simultaneously trigger the opposite of such sentiments. Tyhurst's report also mentioned how an over indulgence in optimism could lead to denial and apathy, which were among the primary concerns of North American civil defence organizations throughout the Cold War. He also warned against the possibilities of igniting widespread panic among civilians, which was another aspect that the government and civil defence organizations wished to avoid at all costs.

Tyhurst suggested that organizations and authorities could "sensitize" the public rather than informing it to the point of causing chaotic and unhelpful anxiety which could, in turn,

> lead gradually to a chronic and explosive state of anxious anticipation which is triggered by the disaster. Under such circumstances, a reaction of denial may be the healthier alternative. It thus seems important that the information programme and planning be pitched at a fairly dry, matter-of-fact level, that it be continuous, and that it be concerned with concrete things to *do*."[60]

Education about the nuclear bomb, therefore, was the best method to prepare the civilian for nuclear war. The Canadian government and civil defence organizations made several attempts to educate the public about nuclear warfare during the 1950s. Three examples of these attempts were a 1954 course pack from a civil defence school organized by the EMO, a 1958 Civil Defence Speaker's Kit, and the Ontario Civil Defence College.

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[59] Tyhurst, 15. (Original emphasis)
[60] Tyhurst, 16. (Original emphasis)

The EMO course pack provided a comprehensive background on nuclear bombs and their destructive capacity, and the devices and methods to be used in order to protect oneself against damage. Throughout the package the EMO information created a sense of awareness which was ultimately countered by reassurance. The initial factor of scientific accuracy dominated the discussion on the effectiveness of the nuclear bomb in the form of various mathematical equations, calculations, figures, and graphs illustrating the bomb's capacity and power. Scientific statements were tempered by an odd ingredient of naivety, or at least a disregard to the apparent hypocrisy found within the overly reassuring statements following the warnings. An example of this was found on a graph detailing the levels of blast damage on urban areas by a nuclear explosion. Words like "some," "mostly," "generally," and "virtually" worked to neutralize the more decisive words such as "destroyed" and "damaged."[61]

The course pack did not consider a nuclear bomb's effect on people at much length. One exception consisted of a very simple graph depicting the three degrees of burns in relation to the victim's proximity to the bomb's explosion. This graph was followed by a series of reassurances to the reader concerning the effects of nuclear weapons and how they could be reduced by atmospheric conditions, by clothing (which, despite being flammable, could still protect the skin) and how "any form of building, shield or covered trench would suffice."[62] The message in the course pack at this point was that the worst place to be in the event of a nuclear attack would be at ground zero; in any other place, civilians would have a chance at surviving. The course pack was not necessarily inaccurate in the information it provided in terms of radiation; it simply did not include *all* of the factors involved in a nuclear attack. Death, for instance, was barely mentioned. There was also no mention of the post-attack disposal of bodies affected with radiation and how this could be problematic for the environment or the individuals handling the disposal.

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[61] Civil Defence School; Civil Defence Radiation Monitoring Course, Diagram "B" of Appendix "B" of Chapter 2, acc. no. 72.289, PAA.
[62] Ibid, 3.

The Civil Defence Speaker's Kit from 1958 provided a different approach to understanding the efforts of the Canadian government to educate the public on the nuclear threat. Produced by the Information Services Division and the Department of National Health and Welfare, the package consisted of two categories of speeches:

> The first group comprises speeches intended to arouse public interest in Civil Defence and may be used before any audience, particularly one which included citizens who know very little of Civil Defence. The second group includes more specialized talks targeted for people who know something about Civil Defence and probably already are members. These talks are more informative and instructive.[63]

The selection of speeches covered a range of material regarding the precautions of a nation in a nuclear war, the nature of civil defence, and its importance in society. Some of the speeches were likely copies of American speeches as they held little significance in the Canadian context[64] but other articles were more accurate in portraying the Canadian position in the Cold War. The speech entitled: "Canada's Civil Defence Policy on Evacuation" exemplified Canadian concerns about nuclear war:

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[63] Information Services Division; Department of National Health and Welfare; Minister Honourable J. Waldo Monteith, "Civil Defence – Speaker's Kit" Forward, 1958, acc. no. 72.289.

[64] Ibid., "Women and Civil Defence." One such speech, entitled "Women and Civil Defence" portrayed an altered version of Canadian frontier history in order to justify the role of women participating in modern civil defence exercises. The speech addressed the sobering thought of women and children participating in warfare with the men which was

> It may be assumed that in any major war involving this country, the air over Canada is likely to be the scene of vital air battles, and that numbers of enemy aircraft carrying nuclear weapons for delivery on targets in the United States or Canada may fail to reach their targets or may be shot down over Canada. In such circumstances, it seems certain the bombs carried by such enemy aircraft will either be delivered against our larger cities – as targets of second choice – or, alternatively, jettisoned and detonated almost anywhere in Canada.[65]

This speech addressed not only the unique Canadian situation, but also the reality of Canada's role in the Cold War.

A final example of the Canadian government's efforts to educate the public about civil defence strategies was the Ontario College of Civil Defence located outside of Arnprior, Ontario. The college, situated at the edge of the small town in eastern Ontario, offered programs to civilians throughout the late 1950s and into the 1960s. A 1960 CBC interview with the College's staff discussed a special program for teenagers over the age of 16 to learn civil defence practices. The intent of the program was to prepare a new generation of Canadians for awareness of civil defence, nuclear war, and the importance of survival. The program also carefully maintained the socially divided gender roles. As the interviewee explained: "The main effort on the girls' part is home nursing, and the boys' part: rescue."[66] There were co-education classes for first aid, household firefighting and radiation detection, but shelter building was just for the male students.

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then justified with a reference to "our pioneer days" when women fought alongside men, loaded riffles, and put out fires set by "flaming Indian arrows."

[65] Ibid., "Canada's Civil Defence Policy on Evacuation."

[66] (No Interviewer/Announcer), "CBC TV News," <http://archives.cbc.ca/IDC-1-71-274-1463/conflict_ war/cold_war/clip4>, July 21, 1960 [accessed January 22, 2008].

Arnprior's civil defence college had a series of exercises which provided students with the proper knowledge of what to do in the event of an attack. But the programs also exposed the students and trainers to hazardous situations. Exercises which involved the use of Geiger counters, for instance, used radioactive material. One exercise in particular featured the detection of radiation in an outdoor field made out like a make-believe city.[67] In order to allow students to experience the Geiger counter, an instrument that clicked when it sensed radioactive material, instructors and volunteers buried the highly radioactive substance Cobalt 60 in the ground.[68] Instructors, unaware of the danger of radiation, also used Caesium 120, another highly radioactive substance, to demonstrate food safety.[69] In the classroom, the instructor would spray the chemical onto fruit to indicate with the Geiger counter the amount of radioactivity present on the food. Then the instructor would wash the fruit in a sink of soapy water and test the radioactive levels until the Geiger counter's clicking stopped. The instructor, to show the students the efficiency of the washing process on the removal of radioactive material, would eat the fruit.[70] The Geiger counter, however, was unable to detect the finer radioactive particles and the instructors at the college consumed large quantities of radioactive material during this demonstration in particular. The trainers of civil defence at Arnprior, although well equipped to practice civil defence methods in the event of an attack, were not fully educated nor trained to deal with radiation. The Geiger counter, for instance, was not a completely effective instrument in detecting radioactive material – it was merely a training device which indicated the presence of radioactive particles in the surrounding environment.

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[67] Nick Fillmore, "Sunday Morning," CBC Radio, <http://archives.cbc.ca/IDCC-1-71-274-1476/conflict_war /cold_war/>, February 7, 1982 [accessed January 22, 2008]. (Interviewees included: Alfred Draper, Mert Flectcher, John Fountain, Harry Hurley, Mrs. Ed Kenyon, Ken McCormand, Tiny Paulson, Roger Remy, and Jack Wallace)

[68] Ibid.

[69] Ibid.

[70] Ibid.

The Ontario Civil Defence College was similar to the rest of Canadian Cold War society in its efforts to retain social normalcy. Despite the organizations' attempts to inform civilians about civil defence preparation for nuclear attack, the information provided was generally inaccurate. The college's exercises did not portray the danger of nuclear war in terms of science, or radiation, but focussed instead on the importance of preparation for war and survival. The atomic workers, who set up, dismantled, and repaired sources for radioactive demonstrations worked directly with radioactive material but were unaware of the medical consequences and the hazards associated with their jobs.[71]

Powerful visual illustrations were an important part of the messages in civil defence booklets and pamphlets during the early Cold War. Simple in nature, the images found within the publications catered to all readers. From the child to the adult, the importance of civil defence in the event of a nuclear disaster was strongly transmitted by carefully designed illustrations. The images used to portray the bomb's destructive capabilities also implied a level of scientific expertise. Most importantly, the illustrations of the civil defence publications achieved the desired concept of controlled panic and subsequent reassurance. Most handbooks detailed the damage of the bomb on urban centres, but few showed the effects on people. And if the physical damage of the bomb on the human body was illustrated, it was usually in the form of blast effects rather than in terms of radiation and burns. An element of domesticity remained prevalent throughout the civil defence handbook. This was to be expected as the handbook was generally written for the homeowner and the family, especially in the case of the fallout shelter literature. The image of the family and domestic life also created a sense of serenity and the persistence of normalcy.

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[71] In an interview conducted by Nick Fillmore of CBC radio, Roger Remy, a retired instructor of the Arnprior Civil Defence College listed his co-workers who were affected with cancer, many of whom had died by the early 1980s. Remy, at the time of the interview, was living with terminal cancer. Ibid.

The issue of protection against the bomb's blast was prominent in various fallout shelter handbooks during the 1950s and early 1960s. The illustration below comes from *The Eleven Steps to Survival* (1961) and depicts the most desirable place for protection: the home shelter.

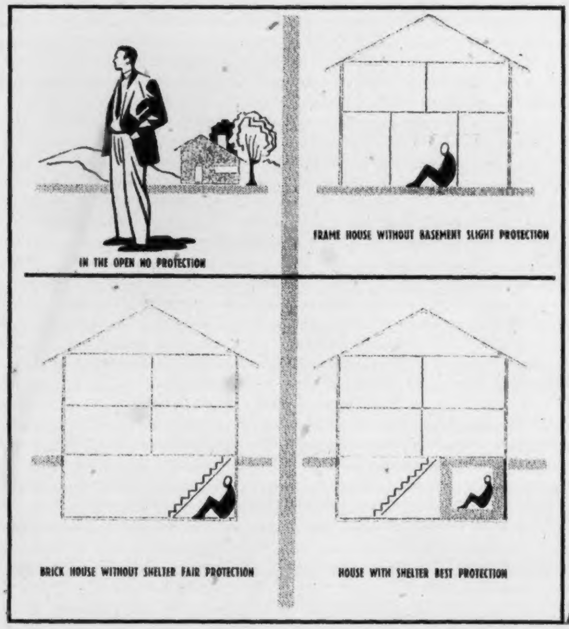
IN THE OPEN NO PROTECTION
FRAME HOUSE WITHOUT BASEMENT SLIGHT PROTECTION
BRICK HOUSE WITHOUT SHELTER FAIR PROTECTION
HOUSE WITH SHELTER BEST PROTECTION

Fig. 4[72]

The drawings are simple, and yet instructive. Even though by the early 1960s scientists were aware that the protection tactics illustrated in *The Eleven Steps to Survival* were futile in the face of a nuclear explosion, the publication and distribution of the pamphlets persisted.[73] The desired situation is clear to the reader and yet no menace is visible to any figure (that is, none of the figures in the diagram are actually in contact with a nuclear explosion). In this way the illustration avoids the danger at hand through design rather than language.

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[72] EMO, *The Eleven Steps to Survival: Blueprint for Survival No. 4* (Ottawa: Queen's Printer, 1961), 13. (The captions read: "In the open no protection; Frame house without basement slight protection; Brick house without shelter fair protection; House with shelter best protection.")

Such is not the case with the illustration depicting protection from the bomb when caught in the open, found in the same handbook. These images display the mushroom cloud in the distance while the figure successfully seeks shelter in the image's foreground:

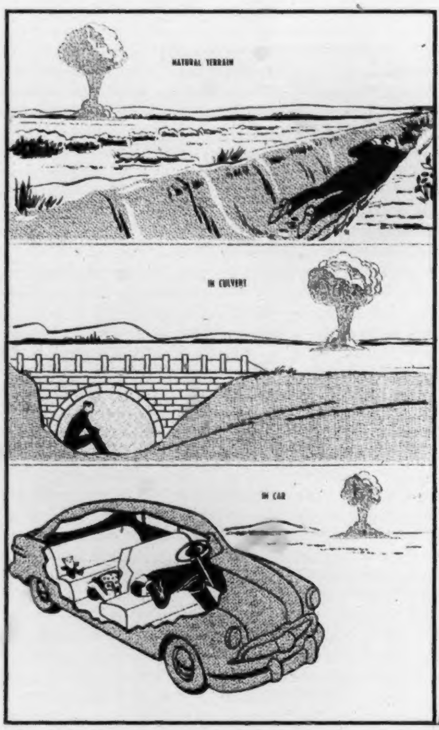

Fig. 5[74]

These illustrations are overly optimistic in their depiction of survival in the face of a nuclear bomb. While the former example indicated that the position outside of the shelter offered the least amount of protection, the latter reassures the reader with the possibilities of saving oneself from an explosion while in the open.

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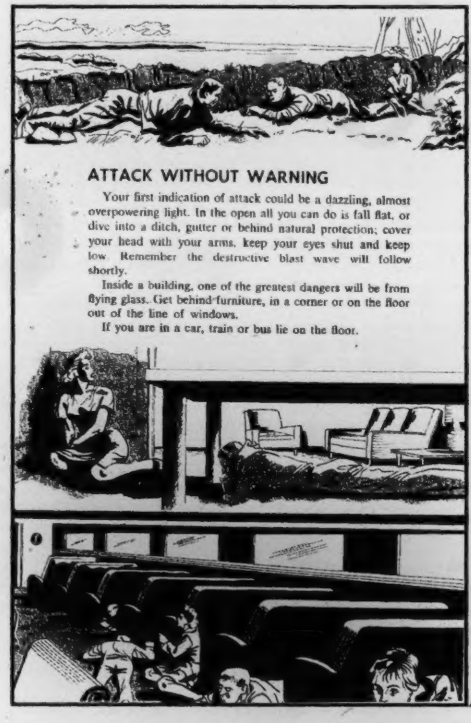
[73] Gerard Piel, "The Illusion of Civil Defence," in *The Fallen Sky*, 57.
[74] *The Eleven Steps to Survival*, 9.

The next illustration, from *Survival in Likely Target Areas* (1962), illustrates the optimum methods of protecting oneself from an unexpected attack. Unlike the previous series of illustrations on the subject, these images are far more graphic, although not including any depiction of the threat's origins or the bomb itself. In many ways the illustrations are less reassuring; the faces of the figures are clear enough to detect expressions of surprise and fear, and the people seem more like actual civilians, rather than stylized figures, as was the case with the earlier examples:



ATTACK WITHOUT WARNING

Your first indication of attack could be a dazzling, almost overpowering light. In the open all you can do is fall flat, or dive into a ditch, gutter or behind natural protection; cover your head with your arms, keep your eyes shut and keep low Remember the destructive blast wave will follow shortly.

Inside a building, one of the greatest dangers will be from flying glass. Get behind furniture, in a corner or on the floor out of the line of windows.

If you are in a car, train or bus lie on the floor.

Fig. 6 [75]

The textual instructions, however, offset the alarmist images with explicitly calming tones. The handbook refers to identifying an attack by the "dazzling, almost overpowering light," seemingly oblivious to the fact that this light would also blind the observer.

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[75] (No Author), *Survival in Likely Target Areas: Blueprint for Survival No. 5* (Ottawa: Queen's Printer, 1962), 41.

In terms of radiation, images often depicted contamination in a step-by-step fashion, usually in the steady decline of radioactive pollution. In the following image, for instance, radiation is depicted as a dust which will eventually disappear, or at least diminish to a manageable level, in a matter of hours and weeks.

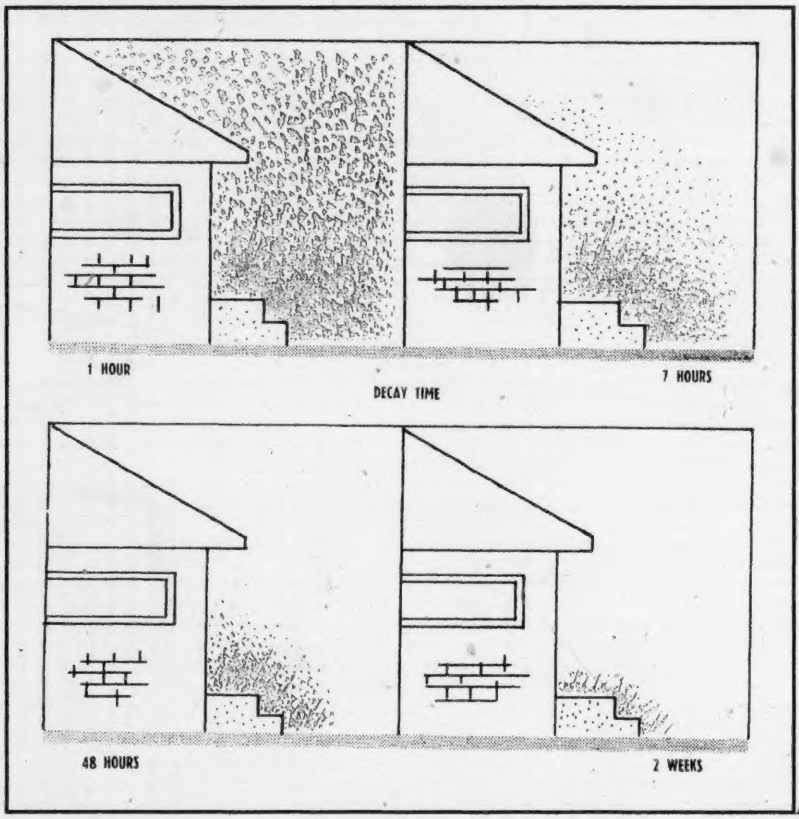

Fig. 7[76]

Radioactivity, like much of the fears of the atom, was domesticated, as discussed in chapter one, with words like "dust" and "dirt" as if comparable to a manageable mess.

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[76] *The Eleven Steps to Survival*, 12. (The image depicts the decay time from one hour, to seven hours, to forty-eight hours, to two weeks.)

American sociologist Guy Oakes, in a study of Cold War culture in the United States, looked at the redefinition of housework during the Atomic Era. The housewife learned, for instance, that radiation "was just another form of household dirt that could be managed by simple techniques and the addition of another appliance, a Geiger counter."[77] The idea that radioactive exposure could be easily handled was illustrated in *The Eleven Steps* through the following image:

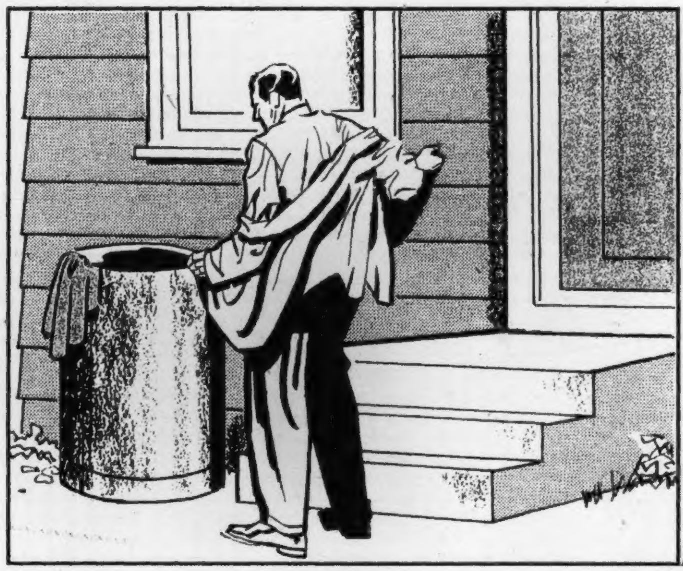

Fig. 8[78]

The man in the picture is discarding his outer layer of clothing in an effort to remove the threat of further contamination from his earlier exposure to radioactive material. According to the handbook, radiation and the nuclear bomb were manageable and easily combatable menaces. The essence of the dangers of radioactive contamination was evident in the handbook images: it seeped into the victim's environment. But it could, in a matter of time, become harmless to a level that normal life could presumably carry on around it. Such was the essence of public mentality sought by the Canadian government and EMO which then resulted in the ambiguity of protection during the early Cold War.

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[77] Guy Oakes, *The Imaginary War: Civil Defence and American Cold War Culture* (New York and Oxford University Press, 1994), 126.

[78] *The Eleven Steps to Survival*, 30. The handbook also referred to various nuclear euphemisms including nuclear "snow."

Conclusion

The place of civil defence in Canadian Cold War society defined the nature of controlled anxiety. Exhibiting a mixture of intense efforts on behalf of the government and civil defence organizations to rouse civilians to action, the role of civil defence was captured in the manner of information issued to the public, and the rhetoric and illustrations found within the handbooks. Civil defence literature provided little in the way of detailing the level of scientific knowledge during the 1950s, but much more in terms of the government's continual efforts to reassure the public with images of hope and the application of peaceful euphemisms.

The Canadian government's attempts to avoid apathy were directly related to its endeavours to avoid panic in post-attack situations. In order to achieve a functioning society that would be able to survive a nuclear attack, physically and mentally, it was necessary to create awareness – but not one that would either drive civilians into spasms of fear with speculations of future conflicts, or into disinterest with the understanding that nuclear war was inescapable. Ultimately the civil defence handbook was written to create unity among civilians and within the nation against a common enemy, in this case a nuclear attack in the physical sense.

Chapter 3: A Case Study of Cold War Ambiguity: Operation "Lifesaver"

The intent of chapter three is to investigate the theories of the previous chapters, such as the elusiveness of a Cold War enemy, the ambiguity of science and technology in society, and the confusion regarding civilian protection from an enemy, as they were practiced through civil defence. In September 1955, after months of careful planning and preparation on the part of the Canadian government and civil defence organizations, Calgary executed one of Canada's only major practice evacuations. The Calgary evacuation, Operation "Lifesaver," offers a useful illustration of Canada's Atomic Era and a model which captured the concerns and interests of the age. Operation "Lifesaver" represented the essence of the Cold War battle for ideals during the 1950s through the planning committee's objectives.

Planners were not intent on replicating an actual attack. The Alberta Civil Defence Headquarters (ACDHQ) and Calgary municipality wanted Operation "Lifesaver" to be an artificial representation of nuclear warfare, one which would calmly prepare the public. In this way, Operation "Lifesaver" exhibited the difference between an exercise and a real threat which persisted throughout the Cold War. As historian Tracy C. Davis stated "[t]he history of civil defense and its corollary, disaster, are deeply implicated in performance, pretense, and scripted pretexts."[1] Similarly, the Operation "Lifesaver" "performance" was a controlled scenario presented to a relatively apathetic public as a scientific experiment. The exercise was one of the few pieces of concrete evidence demonstrating Canada's involvement in the Atomic Age.

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[1] Tracy C. Davis, "Between History and Event: Rehearsing Nuclear War Survival" *The Drama Review* 46, 4 (Winter 2002); 40.

Operation "Lifesaver" was, more than anything, an effort to prove to Calgarians, Canadians, and the world at large, that western civilians could survive a nuclear attack. There are a number of possibilities as to why Calgary hosted the major civil defence exercise of Canada at this time. Calgary was the largest city in southern Alberta, a strategic centre for oil and gas production, and an important location for wheat distribution and meat packing. It was also "the Canadian gateway to rail traffic through the Rockies."[2] Calgary was therefore considered a logistical target. But throughout the 1950s, and at the time of the exercise, Calgary was considered as a secondary target by military analysts. It was possible that the civic leaders volunteered the city for the exercise, as much of the planning was rooted at the municipal level rather than at the federal or even provincial levels.

Planers expected Operation "Lifesaver" to symbolise not just Alberta's preparedness in the event of an attack, or even Canada's, but the western world's readiness. Director of Civil Defence, Geoffrey Bell wrote in his preliminary notice announcing the exercise to Calgarians that,

> Civil Defence in Calgary, through me, promises you – at the cost of much hard work – its very best services. In return it begs for your co-operation always – but especially on Wednesday, September 21st, when the eyes of the whole of North America will be focussed on us.[3]

Operation "Lifesaver" was a political exercise in the form of a scientific experiment that sought more than to test the reactions of civilians of a city under simulated attack. The exercise was a tool of propaganda formed by civic pride and images of western might, and it was created in an effort to encourage Canadians to believe that they could survive a nuclear attack.

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[2] Davis, 18-19.

[3] Geoffrey Bell , "City of Calgary Civil Defence Evacuation Exercise: Preliminary Notice," April 1955, in *Report on Operation Lifesaver* (20 February 1956), 51, Civil Defence, "Department of Transportation," acc. no. 85.368, Provincial Archives of Alberta, Edmonton.

Operation "Lifesaver" was not the only large-scale civil defence practice during the Cold War. It was, however, the most elaborate civil defence practice of its kind in Canada: "The scale of the plan was unprecedented and it attracted international attention. NATO decided to send observers."[4] Unlike other practices preparing the Canadian civilians and government for nuclear war, Operation "Lifesaver" involved the direct participation of residents. Civil defence, therefore, moved beyond the hypothetical assumptions of the government's reaction to the possibility of nuclear war, and away from a purely theoretical situation. This is not to say that Operation "Lifesaver" was the only civil defence practice which involved the active roles of civilians: Operation "Dogwood" in 1956 involved the participation of civilians in a planned hospital evacuation in Vancouver.[5] The majority of tests during the 1950s were, however, based on abstract situations dealt with in theoretical manners. One such example was the Alert I exercise in the winter of 1954 and 1955. Alert I was a civil defence practice for Alberta communities presented in the form of a war game. Headquarters, chosen at the beginning of the game, established strategic plans based on given scenarios. The exercise did not even take place in real time but was sped up to "eliminate lags."[6] The staff training plan, as issued by coordinator G.R. Howsam to the Committee Chairmen of the ACDHQ staff, detailed the exercise training sessions. According to a letter from Howsam, the exercise was to begin on November 2, 1954 with the appointment of community representatives. The first training session would take place on November 30, and the first Tuesday of each month leading up to this point would be devoted to training.

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[4] Randy Richmond and Tom Villemaire, *Colossal Canadian Failures 2 : A Short History of Things That Seemed Like a Good Idea at the Time* (Toronto: The Dundurn Group, 2006), 90-1.

[5] (No Interviewer/Announcer), "CBC Newsmagazine" <http://archives.cbc.ca/IDCC-1-71-274-1472/conflict_war/cold_war/> November, 25 1956 [accessed December, 3 2007].

[6] G.R. Howsam, letter, 1954, acc. no. 85.368, PAA.

Alert I included fifteen municipalities around Alberta: Calgary, Camrose, Grande Prairie, Leduc, Lethbridge, Medicine Hat, Peace River, Ponoka, Red Deer, Rocky Mountain House, Strathcona, Vulcan, Westlock, Northern Mutual Aid Area, and Central Mutual Aid Area.[7] The two Mutual Aid Areas were apparently a combined effort of communities to help the situation in Edmonton which was, judging from the layout of the plan, dire. As the provincial capital, and as a strategic bomb target, Edmonton was the primary focus of the theoretical attack. The exercise was built around the plight of Edmonton and what the rest of the province would have to do in order to keep the capital city functional. The Mutual Aid Areas were to provide the capital city with rescue facilities, equipment and supplies, utility and works projects, auxiliary officers, and firefighters.[8] The headquarters for the experiment provided the fifteen municipalities with a scenario concerning damages inflicted on their respective areas. The community representatives would then have to devise a civil defence and post-attack reconstruction plan to deal with the disaster by the close of the exercise. The level of destruction differed between the communities. Calgary, according to the exercise, suffered from four two-thousand pound "H.E." [high explosive] bombs; two landing on residential districts, one destroying the Langevin bridge and demolishing long distance phone cables, and one hitting the C.P.R. yards "causing complete disruption of service north, east, and south of

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[7] Development of Exercise 'Alert I,'" 1954, acc. no. 85.368, PAA.
[8] Ibid.

City."[9] Calgary therefore would have to deal with transportation difficulties, communication failures, and the destruction of service routes. Grande Prairie, meanwhile, would suffer four-hundred one-kilo incendiaries, Leduc would have one "U.X.B." [unexploded bomb] a mile north of the community, and Red Deer would experience one two-thousand pound "H.E." bomb which would damage the town's road bridge beyond repair, resulting in numerous casualties and property damage. No advice, oddly enough, was offered regarding the possibility of nuclear attack.

The representatives of the communities then devised methods to deal with the disasters presented to them. There were a variety of responses. At the conclusion of the exercise the Calgary representatives had dealt with their problems: the residential incidents were under control with the hospitalization of the casualties, the re-housing of the displaced, and the restoration of utilities. Traffic was rerouted around the demolished bridge, teams were clearing up the debris around Calgary, and although the rail traffic remained disrupted, restoration was estimated to take place within the next twenty-four hours. Additionally, Calgary was preparing to receive ten-thousand refugees from Edmonton.[10] Grande Prairie, on the other hand, failed to report its action plan or situation at the end of the exercise. Leduc positioned a guard at the "U.X.B." Military Command in Edmonton and dispatched a disposal squad. In Red Deer, traffic was rerouted around the destroyed bridge and arrangements were being made to plank the bridge for wheeled traffic. The city was also preparing to receive one thousand displaced persons and three-hundred seriously injured individuals from Edmonton.[11] The Alert I exercise attempted to presuppose and prepare for the likely situations presented by an enemy attack. The process of dealing with the hypothetical attack was itself purely theoretical; Alert I was nothing more than a game in strategy. Operation "Lifesaver," in contrast, presented civilians with an active exercise responding to the nuclear threat. Planners moved from two-dimensional maps to a three-dimensional city, and replaced tokens with civilians. But although Operation "Lifesaver" developed in the planning room, it remained a very controlled experiment focussing on the logistics of a potential attack rather than the mere threat.

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[9] Ibid.
[10] Ibid.
[11] Ibid.

The plan for a massive civilian evacuation out of Calgary was introduced publicly on February 11, 1955. Provincial Secretary-Treasurer, C.E. Gerhart, Federal Civil Defence Coordinator, F.F. Worthington, and National Health and Welfare Minister, Paul Martin were behind its conception. The plan relied on input from the mayor of Calgary, Don MacKay, Director of Civil Defence, Geoffrey Bell, and Coordinator for Operation "Lifesaver," G.R. Howsam. The evacuation was scheduled for Wednesday, September 21, 1955 and intended to engage the movement of 40,000 Calgarians, one quarter of the city's population.[12] Because of heavy snows, however, civil defence planners in Calgary decided to postpone the exercise for a week and, as a result, approximately only 6,000 residents participated.[13] On September 28, 1955 at 10:50 a.m., a time which remained unknown to the participants to better simulate a surprise attack, the mayor of Calgary set off the warning signal to notify the selected population within the city to prepare for their evacuation to surrounding communities.[14] As a contemporary CBC documentary stated:

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[12] Richmond and Villemaire, 90.

[13] *Report on Operation Lifesaver*, 19, acc. no. 85.368, PAA.

> School children were all told to go straight home as fast as they could. Housewives left their chores. Businesses closed down. Men took their cars home, collected their families, took food and clothing for one whole day, and made for routes out of town already organized and cleared by the police in conjunction with city and provincial organizers.[15]

At 1:00 p.m. after the residents had "escaped," the Royal Canadian Air Force (RCAF) conducted a simulated attack over the north-eastern part of the city where the participants of the exercise lived. To better conduct the exercise in an orderly and controlled fashion, Operation "Lifesaver" converted the drill hall of the RCAF Station Calgary into a "war room" decorated with wall maps of the city and receiving communities, as well as a communications board following the movement of the evacuees out of the city. Military personnel, civil defence observers, switch board operators, and clerks helped run the program from the station.[16] Meanwhile, "Bell and other civil defence leaders [directed] the exercise in a bomb proof bunker built at the municipal golf course at a cost of $70,000."[17] Television crews followed the course of the exercise from the control station to the deserted streets in the suburbs in north-eastern Calgary, to the families making their way to the receiving communities surrounding the city. The political exercise in the form of a scientific experiment, fully recorded, stressed the importance of civil defence and order in the face of chaos to civilians across the country.

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[14] "The time at which the operation would commence was kept secret but Civil Defence personnel were ordered to be at their action stations by 1000 hours. The Warning Yellow was disseminated from ACDHQ in Edmonton over Alberta Government Telephones at 1032 hours. The Alert was sounded on the Calgary sirens at 1050 hours." *Report on Operation Lifesaver*, 14.

[15] (No Interview/Announcer) "CBC Newsmagazine," <http://archives.cbc.ca/IDC-1-71-274- 1461/conflict_war/cold_war/clip2>, October 9, 1955 [accessed December 3, 2007].

[16] Richmond and Villemaire, 91.

[17] Ibid.

1. Scientific Method and Preparation for the Experiment

Operation "Lifesaver" was an experiment in many ways; it featured a method, subjects and materials to be used in the test, and expected results. And, like a scientific experiment, the exercise followed the universal steps of an investigation: first, the formulation of a hypothesis: if Calgary residents leave Calgary in an orderly fashion, they will save themselves from a nuclear attack; second, a selected research method and design study: observation of the evacuation through film and data; collection and analysis of the data: compiled mainly by the media and the ACDHQ; and a report depicting the findings: in this case a report was written by the ACDHQ after the execution of the civil defence exercise. The general motivation behind the 1955 Calgary evacuation was propaganda in an effort to engage civilians and legitimize the civil defence exercises.

The Central Mutual Aid Area (CMAA), the area selected by the ACDHQ, was primarily a suburban section of the city and it featured well organized routes which would be easily traversed in the event of an emergency. The north-east section of Calgary, as depicted in the map below, was divided into twenty-one zones for the course of Operation "Lifesaver:"

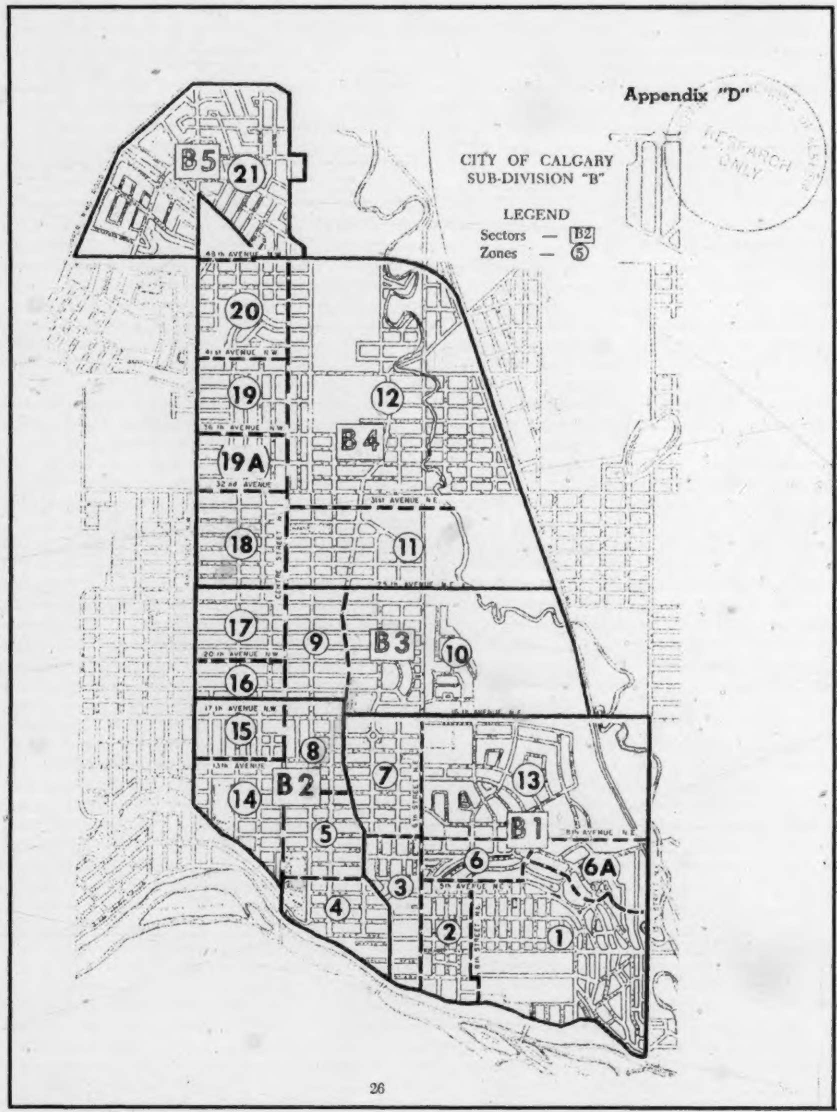
Appendix "D"
CITY OF CALGARY
SUB-DIVISION "B"
LEGEND
Sectors — B2
Zones — ⑤
B5
21
20
19
19A
18
17
16
15
14
B4
12
11
B3
9
10
B2
8
7
5
4
3
2
B1
13
6
6A
1
26

Fig. 9[18]

The residents of each zone were issued directions for escaping to specific receiving communities outside of the city. These routes and communities were colour coded and corresponded to the location of the evacuee's neighbourhood. The participants of the exercise, as is wont with subjects of most scientific experiments, were to be reimbursed for their troubles: they were paid for the day missed from work and "insurance coverage was arranged for participants who might get in a car accident or sustain property damage during the exercise."[19]

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[18] *Report on Operation Lifesaver*, "Appendix," 26.

Even prior to the experiment, the ACDHQ studied its subjects. The intent of the tests was not entirely clear; the tests could have been designed to benefit the exercise by providing the planners with information to be extrapolated in a real life event but they could have also been designed to make the exercise run more smoothly through the selection of a capable, mobile, and willing group of people. Along with the extensive information regarding the destination points of the exercise, the Operation "Lifesaver" coordinators also questioned residents about their family status and on their abilities to travel. In one specific questionnaire, sent months prior to the exercise, the ACDHQ obtained information concerning the number of members of the participating families, the number which were at home during the day, and the ages of the children of the family. Potential participants were also questioned about their car, if they had one, if it was serviceable, and if so its availability and how many people it could hold. Finally, the ACDHQ wished to know "[d]etails of any members of family who by reason of infirmity, etc. would be incapable of joining in an Evacuation Exercise."[20] The bottom of the questionnaire provided space for the civil defence warden of the area to include remarks and a signature. Following this questionnaire, approved CMAA families received, in June 1955, a form stating that "It has been noted from the Warden's Canvass that your family will take part in the Exercise" and the resident would either "evacuate your family in your own car" or would find transportation at fixed assembly points within the community.[21] With this form, the resident was a classified participant of the controlled experiment.

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[19] Richmond and Villemaire, 91.

[20] *Report on Operation Lifesaver*, "Appendix."

The study's emphasis on individual transportation indicated the nature of Operation "Lifesaver's" primary intent – to provide civilians with a comforting image of survival. Civil defence, by stressing the importance of personal means of evacuation, fed the postwar capitalist mentality which associated freedom with the individual and consumerism. Of course, in addition to the image of the individual escape, the ACDHQ made plans for residents without means of transportation: busses would collect passengers at pre-arranged assembly points and residents were urged to notify neighbours ahead of time if they were in need of transportation. A mass evacuation would have been more practical in terms of cost and logistics had it focussed on public transportation for the entire population. But the ability to drive away from danger satisfied the individual's appetite for self control, and communal assembly points and public transportation may have been reminiscent of communism to the capitalist individual. In the era of the individual and capitalism, to consume was to survive; a family car and a full tank of gas could spell safety from attack, and there was no need to depend on the services of anyone. The nature of the Calgary evacuation exercise corresponded directly to the origin of the evacuees – they were from the suburban section of the city. Driving through the organized and open streets of suburbia, the residents of the north-eastern section of Calgary were expected to complete a clean and well-ordered exit while the rest of the nation watched.

In April 1955, Howsam issued a preliminary notice to Calgary residents regarding the impending civil defence evacuation exercise. The rhetoric of the notice, along with other sources that supported the exercise, such as the local newspaper, attempted to combat all possibilities of civilian apathy toward civil defence programs:

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[21] Ibid.

> The *Herald* then pulled out all the stops to persuade people to participate. A front-page column by a reporter who had witnessed the devastation of Pearl Harbour warned Calgarians that they were not invulnerable from an attack. The *Herald* editorial the day before the exercise proclaimed it "the plain duty of every responsible citizen to co-operate as fully as possible.[22]

Howsam's notice also included brief references to the possibility of a hydrogen bomb dropping on Calgary:

> The Federal Government – with all the very latest intelligence reports in its possession – is satisfied that, if war ever comes, the "H" Bomb will be used. (You and I may have our own ideas about this – but I think we have got to admit that, based as they probably are on nothing better than wishful thinking, they are not worth a great deal.)[23]

With an apparent frankness and voice of reason, Howsam used this statement to work against any cynicism about civil defence. The notice used the superior knowledge and understanding of the government as a reference point and reason to follow a civil defence program. Like the civil defence handbooks and their ambiguous messages regarding protection in the event of a thermonuclear attack, the Operation "Lifesaver" planners used tactical methods to engage the participation of Calgary residents. Bell's notice ended with the following explosive and fear-inducing statement:

> THE ONLY WAY OF ESCAPING CERTAIN DEATH WHEN ONE OF THESE THINGS EXPLODES IS TO BE AT A SAFE DISTANCE FROM THE AREA OF EXPLOSION.
> You and I, therefore, have just two choices – and as this is a free country – we may take which one of them we fancy and no one can force us to do otherwise. We can stay in the target area and die – or we can evacuate ourselves and live. It

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[22] Richmond and Villemaire, 93.

[23] *Report on Operation Lifesaver*, "City of Calgary Civil Defence Evacuation Exercise: Preliminary Notice," 51.

> must be one or the other – and the choice is in our hands.[24]

The warning clearly defined what was apparently common sense: there was going to be a nuclear war and the best way to avoid getting killed was to evacuate the city when the siren rang. The statement was almost too simplistic in nature to be manipulative, particularly with its blatant reference to the free western world: "this is a free country." Perhaps this message was not so much a fear tactic as an attempt to cast Civil Defence as a natural *and serious* response to the global issues at hand and the attractive qualities of participating in the evacuation exercise. The message was also personal; its authoritative and advising tone was masked by a sense of confidentiality with the addition of the first person, "I," and the second person, "you." Manipulation and fear tactics were not the only methods of making Operation "Lifesaver" appeal to the Calgary resident; constructive imagery was equally important. Civil defence had to be driven by more than fear – it had to appear attractive to the civilian.

The Operation "Lifesaver" planners were elaborate in their attempts to maintain an element of surprise for the participants and also to achieve a level of safety and control throughout the exercise. The Movement Control Committee was an organization involved in the planning process which regarded a variety of plans by the government and the ACDHQ and which discussed the organized evacuation of Calgarians to surrounding areas. The minutes from the Movement Control Committee meeting which took place on June 20, 1955, detailed the various concerns of the exercise's operators.[25] Included in the minutes were the following subjects of discussion: "Details of the problem," which regarded the geographical routes of the evacuation and how to avoid bottlenecks on the highways and escape routes; "Control organization required," concerning the use of municipal and federal police officers to direct the routes; "Communications," which looked at how best to control the situation, namely proper signage of escape routes to relay information to the drivers and to introduce alternative routes in the event of any difficulties; "Administration Aspects," regarding signs, auxiliary police and civil defence personnel identification and also the power of the civil defence auxiliary police; "Return," the timing and the road signs for the route back, and where the evacuees should go upon their arrival in Calgary; and, finally, "Trial run."[26] Following these topics was a discussion regarding the plan to close the highways leaving Calgary for the amount of time it took for evacuees to leave the city. Mixed with this effort to maintain order in a potentially chaotic situation was the committee's desire for an element of reality and surprise, which turned out to be more artificial than anything else:

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[24] Ibid. (Original emphasis)

[25] Movement Control Committee [Operation Lifesaver], "Meeting Agenda," June 20, 1955, acc. no. 85.368.

> It was agreed that in order to maintain the element of surprise for the evacuees that the public be informed by means of press and radio, by the Dept. of Highways, that the highways being used for the evacuation would be subject to closure in sections for periods up to three hours (this period may be four hours, but the actual length of time will be worked out) during the time 1000 to 2000 hours on the 21st of September.[27]

The committee also discussed the waves of civilian departures from the city according to the destinations' distances:

> Sgt. Cunningham stated that the RCMP would be pulling in their people from all over the province for traffic control duties during the exercise and that with the assistance given by Western Command he saw no difficulty whatsoever in traffic

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[26] Ibid.

[27] Ibid., "Minutes from the Movement Control Committee for Operation 'Lifesaver.'"

control.[28]

A letter from Bell suggested the publication of a notice regarding the transportation issue of the evacuation process. The notice outlined, in addition to introducing the routes and the preparatory procedures that the Calgary evacuee should take before the exercise, the possible hazards to highway travel at the time of the evacuation. Bell suggested the time when the routes should be blocked in accordance with the exercise:

> "Operation Lifesaver"
> To facilitate the movement of motor traffic taking part in this exercise, it will be necessary to close certain Sections of the Highways mentioned hereunder for periods of about 2 to 3 hours at some time between 1000 hrs. and 1700 hrs. on Wednesday, 21st September, 1955. The closure will affect all traffic on these highways moving in the direction of Calgary and it will be imposed in the Sections concerned without further notice.[29]

Blocked traffic and controlled routes were features of peacetime; neither of these aspects would occur in the event of an actual evacuation. But then, this was not an actual evacuation.

A level of communication between planner and evacuee was integral for a successful execution of Operation "Lifesaver." Planners, in the attempts to create a clear evacuation route, debated over the colour-coding of the routes through road sings:

> It was, you will recollect, agreed that the signs should be 8 feet x 4 feet, white background, with black lettering in the top half and the route colouring in the bottom half. The size [was] regarded as absolutely necessary by those people at the Conference with much experience of traffic direction and control; it has the further merit of allowing us to utilize sheets of plywood in their normal size.[30]

The nature of the communication used by the city planners were visually positive; reminiscent of elementary school orientations, the coloured signs created a sense of easily comprehensible directions as well as comfort in what would be a stressful and frightening time for most civilians. The six escape routes from Calgary to the receiving communities were symbolised by the colours pink, light blue, light green, brown, yellow, and red.[31] Pink was used for those residents destined for Airdrie and Crossfield (leaving Calgary by 4th Street N.W. and Centre Street N.W.), while light blue was for those destined for Carstairs, Didsbury, Olds, Bowden, Innisfail, and Penhold (using Edmonton Trail). Light green marked the route for evacuees destined for Carbon and Drumheller (travelling along 16th Avenue N.E., the Trans-Canada and No. 9 Highway) and brown was originally for those destined for Irricana and Beiseker (leaving by 16th Avenue N.E. and the Trans-Canada), although, according to the plans there appeared to have been a change, either with the destination point or the route. Yellow marked the route to Acme, Three Hills, and Trochu (the residents would travel by 16th Avenue N.E., the Trans-Canada, No.9 Highway and No. 21 Highway) and red designated the route to Strathmore and Rockyford (by 8th Avenue N.E., Riverside Boulevard, Blackfoot Trail, and No. 1 Highway).[32]

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[28] Ibid.

[29] G.O. Bell, letter, July 5, 1955, Emergency Measures Organization, "Executive Council," acc. no. 76.428, PAA.

[30] Bell, letter, June 30, 1955, acc. no. 76.428 PAA.

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[31] Ibid.

[32] Ibid.

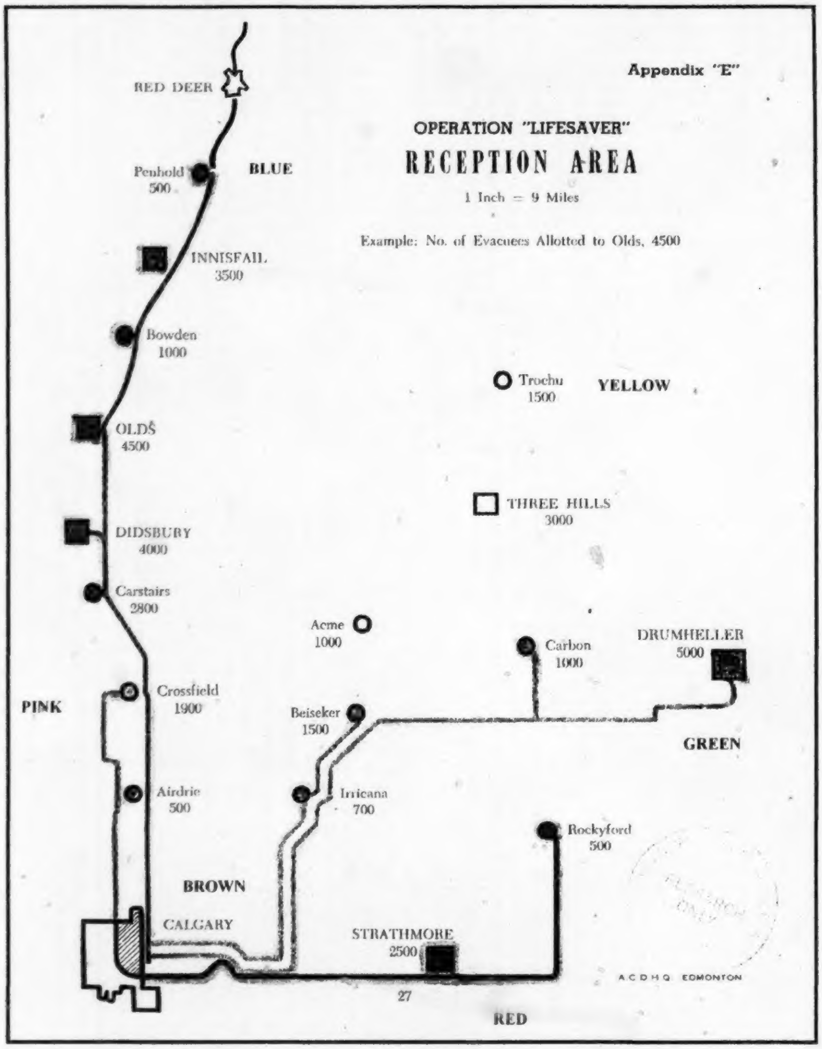
Appendix "E"
OPERATION "LIFESAVER"
RECEPTION AREA
1 Inch = 9 Miles
Example: No. of Evacuees Allotted to Olds, 4500
RED DEER
Penhold 500
BLUE
INNISFAIL 3500
Bowden 1000
OLDS 4500
DIDSBURY 4000
Carstairs 2800
Crossfield 1900
PINK
Airdrie 500
BROWN
CALGARY
Trochu 1500
YELLOW
THREE HILLS 3000
Acme 1000
Carbon 1000
DRUMHELLER 5000
Beiseker 1500
GREEN
Irricana 700
Rockyford 500
STRATHMORE 2500
27
RED
A C D H Q EDMONTON

Fig. 10[33]

The report did not fully discus whether or not the signs were to remain on the roads following the exercise in preparation for an actual attack or, for that matter, what would be done with them following the experiment. Nor was there any apparent fear of enemy infiltration into the civilian escape plan. The primary concern of planners appeared to be nothing more than the efficiency from providing the participant of the exercise with a clear portrayal of an escape route.

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[33] *Report on Operation Lifesaver*, "Appendix," 27.

2. Image

The messages expressed through the planning process's images best characterised the intent of Calgary's Operation "Lifesaver." The issue of illustration and communicative images remained prevalent throughout a long and drawn-out discussion regarding the division of funds for the civil defence operation in a series of letters between Bell and Howsam beginning in October 1954. Central to this discussion was the power of images to instil civic pride. The insignia on the shoulder and beret badges worn by civil defence officers emphasized the apparent concern for a prominent Calgary presence in the exercise. Bell expressed the importance of image in a letter to Howsam, dated March 14, 1955:

> … I feel that a shoulder title simply indicating 'Canadian Civil Defence' would lack everything required to fire local imagination. I feel that the combination set out above, showing that the wearer belongs to the Calgary unit of the Alberta Corps of Canadian Civil Defence will go a long way towards building up an esprit de corps which we shall want to establish. It will also make it easy for re-enforcement to be readily identified.[34]

Civil defence in this case was more of a *pre*-war operation rather than one concerning post-attack disaster. The insignia's importance was not so much for identification of the officer in the chaos of a post-attack city, but the identification of Calgary's readiness for a post-attack situation. The crest was to attract the public's attention, to create an awareness of the force and power of civil defence in Calgary, and the city's progressive movement towards a united operation and preparedness.

A couple months later on May 9, 1955, Bell wrote to Howsam again, this time expressing his desire to have the civil defence officer uniforms available sooner than

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[34] Bell, letter to G.R. Howsam, March 14, 1955, acc. no. 76.428, PAA.

September. Bell wanted the uniforms to appear as a contingent in the Calgary Stampede procession which would take place in July:

> My Controllers and I feel this is an opportunity not to be missed, this year, of showing a live Civil Defence organization off to thousands of people, from Calgary and elsewhere, who will be lining the route, but it means that a decision on the question of badges MUST now reach me without delay.[35]

The element of civic pride in the civil defence preparations in Calgary was accentuated by a June 14 letter to Howsam from another organizer by the name of A. Pert. Pert's letter regarded the influx of local auxiliary civil defence police which would be recruited and trained for the September exercise. His letter addressed the urgent need and importance of the availability, and production, of 150 civil defence uniforms. Once again, the importance of the uniforms was based on image and the symbol of civic authority, rather than their utility for the pending attack:

> It appears to be generally considered that these men who are giving their time and a good deal of interest to training for this work, feel that a distinctive and suitable police uniform will be necessary if they are to operate efficiently. It is also suggested that without such a uniform it will be very difficult to maintain the interest and co-operation of these people.[36]

Pert's concluding comment regarding the importance of maintaining the interest of "these people" is particularly compelling in its apparent elusiveness. He could have been referring to the auxiliary officers. If this were the case it would be because of the officers' lack of interest in the practice, which would emerge from their lack of a powerful image in the eyes of the public. More likely, Pert was referring to the civilians participating in the exercise. If this were the case, what he was referring to was the common fear of civilian apathy in the face of post-attack planning. Essentially, Pert and other planners noted that if civilians were not prepared to accept the possibility of nuclear attack in the event of a war they would not only be lost in the chaos but they would also contribute to potential mayhem. Pert presented the civil defence officer uniform as a tool to prepare civilians *for* attack and to give them a sense of security *following* an attack.[37] In pre-attack society the uniform would signal to the civilian that there was a possibility for war and therefore reason to prepare. The uniform also indicated that the civilian's city, province, and nation were not prepared to give way under an enemy attack. In the post-attack situation the uniform would be a symbol of surviving western society. It would also steer the traumatized civilian towards the familiarity of social order, law, and society.

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[35] Bell, letter, May 9, 1955, acc. no. 72.428.

[36] A. Pert, letter to G.R. Howsam, June 14, 1955, acc. no. 76.428.

The civilian was the central character in the event of a nuclear war: the civilian was the target and the civilian was responsible for maintaining the continuation of society and culture in the face of a nuclear holocaust. Through the image of power and authority, the uniform's symbolic value was strategically used to spurn the apathetic civilian into activity. Judging from his emphasis on the Calgary insignia, pride was behind Pert's concern for the civil defence officer's representation. There was also a possible strategic quality to the uniform in terms of communication; the uniform would keep people in civilized society even in the chaotic aftermath of a nuclear bomb and it would provide some recognizable form of authority. Visual communication through icons and symbols were central to the effort of re-orientation following a disaster. As was discussed in chapter two, physician Tyhurst, in his report on the psychological effects of a nuclear war on the civilian, looked at the importance of communication which lay not only with technology, such as telephone, radio, and television, but with institutions and institutional symbols. First Aid and Red Cross symbols, for instance, were forms of communication and should therefore be strategically placed in the event of an emergency or disaster. The re-establishment of the familiar, "the re-identification of individuals as people and as social roles, and the early reconstruction of basic social groupings (e.g., the family, the work group) are essential features for the process of recovery."[38] In times of stress, Tyhurst continued, institutional symbols assumed "added meaning":

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[37] Ibid.

> One should recognize the communication value of the first-aid sign, the badge, the armband, the uniform, and the red-cross. Such symbols have very strong connotations, should not be used indiscriminately but strategically to ensure their maximum effect for information and reassurance.[39]

The question remains, however, would the wounded civilian really care whether he or she was aided by a Civil Defence officer of Canada, or of Alberta, or of Calgary? The significance of the badge in this case, remained in the pre-war phase which held civil defence as a symbol of civic strength, rather than of helpful communication in the chaotic aftermath of a nuclear attack.

3. Publicity

Publicity was also particularly important to the function of Operation "Lifesaver." The official Operation "Lifesaver" report, compiled by the ACDHQ and published in early 1956, emphasized the importance of communications and technology:

> Interest in Civil Defence was greatly stimulated in Alberta due to the preparations for and during the actual Exercise. For this we must give great credit to the press, radio and TV companies and their representatives. They were generous in their assistance with publicity, and the reporting and recording by their representatives

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[38] J.S. Tyhurst (MD), *Psychological and Social Consequences of Disaster 'What Should the Doctor Do?'* (Montreal and Ottawa: The Department of Psychology, McGill University and the Defence Research Board, 1954), 21.
[39] Ibid.

> showed a well-informed knowledge of Civil Defence which resulted in accurate and instructive publicity.[40]

An Alberta civil defence newsletter, the *Civil Defence Circular* recognized, in an issue devoted exclusively to Operation "Lifesaver," the wide-scale media coverage of the exercise which included *The Calgary Herald*, *The Albertan*, Canadian Press, British United Press, radio stations such as C.F.A.C., C.F.C.N., and C.K.X.L., C.H.C.T. – TV, Federal Civil Defence Information Service, National Film Board, Associated Screen News, C.B.C. radio and television, *Saturday Evening Post*, *Maclean's*, *Winnipeg Free Press*, *Montreal Star*, *Toronto Telegram*, *Time Magazine*, *Vancouver Sun*, and the Department of Economic Affairs.[41] A CBC television documentary featuring Operation "Lifesaver" presented the exercise in a heroic fashion, adding a sense of drama with the incidental music which played throughout the program. The documentary followed the events of the practice from the initial alarm, to the journey out of the city, to the lunch prepared for evacuees in the receiving communities, and, finally, the return home.

This course of events was followed through a specific but anonymous family. First the documentary featured the housewife of the family in the suburban kitchen hearing the civil defence warning via the radio, then her children running home from school, and finally her husband leaving his job in town for the suburb. The documentary showed the process of emptying the city and the work of programmers at the civil defence control centre. The receiving communities were portrayed as welcoming and cheerful towns with groups of friendly volunteers providing a warm lunch for the "refugees." The documentary noted that "[t]hough the weather was chilly, it was dry and most evacuees enjoyed their day in the country."[42] In addition to stressing the positive aspects of the practice, the CBC program accentuated the importance of the exercise with the exuberant concluding statement: "Operation 'Lifesaver' has set the pattern for Canadian civil defence. War may never come, but if it does it will be a city with a plan whose citizens *will* survive."[43] The announcer also noted that Operation "Lifesaver" was a controlled practice but that, "if the real thing ever comes, people will remember the practice and follow the routine."[44] The documentary provided the general intent of the experiment: the exercise was not to educate the public, but to promote the civil defence organizations. In this way, publicity was a primary component of Operation "Lifesaver."

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[40] *Report on Operation Lifesaver*, 22.

[41] *Civil Defence Circular* 5, no. 7, October 15, 1955, acc. no. 85.368.

The ACDHQ Operation "Lifesaver" report detailed the course of the civil defence practice. In many ways, the ACDHQ report was similar to a scrap book: it included responses to the course of events by the main programmers, timetables, maps of Calgary and of the surrounding and participating communities, and the various documents issued to the public concerning the practice. The report, however, contained no photographs of the exercise or of any other aspect of Operation "Lifesaver," with the exception of an aerial photograph of Calgary taken the morning of September 28, 1955. The physical attributes of the practice were converted into a theatrical response to the perceived nuclear threat. The report, with its lack of photographic evidence of the events which took place on September 28, were no more tangible than many of the presupposed events found in civil defence handbooks and government reports concerning postwar reconstruction activities. In this way, the report could be considered a contrived representation of an apparently realistic event.

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[42] "CBC Newsmagazine," clip 2, October 9, 1955.
[43] Ibid.
[44] Ibid.

The official report portrayed Operation "Lifesaver" as a satisfactory success:

> Exercise "Lifesaver" was of great value. Despite the difficulties and the disappointments – and there were many – it paid valuable dividends. For example the existing civil defence organization was given a good test, and its strength and weakness under operational conditions were brought out. Also it provided practical field training at all levels of government, and created new interest in civil defence both in rural and civic areas by giving the people a definite job to do.[45]

According to the report, participants of the exercise respected authority and cooperated with the plans issued by the EMO and ACDHQ. As with most observational methods of research, the Operation "Lifesaver" experiment was subject to bias. Reports following the exercise, in the ACDHQ booklet, in the newspaper, and in civil defence newsletters, emphasized the cooperation of civilians, and their eagerness to join in the activities:

> Most evacuees displayed keenness and enthusiasm for the Exercise. Of those questioned none voiced any complaint regarding expense, encroachment on their leisure or leaving their homes unoccupied. The attitude of those who refused to take part in the Exercise was disinterest, disbelief, or distrust in the Exercise, and cynicism, or they offered some excuse that the Exercise did not concern them. The attitude of pedestrians who walked to assembly points was excellent.[46]

The exercise apparently achieved the purpose of the project, which was detailed at the beginning of the report:

> Operation "Lifesaver" was a co-operative civil defence project between federal, provincial and municipal authorities and was designed to ascertain some of the problems that would be faced by cities such as Calgary when evacuating large groups of people from a threatened area. The exercise was also designed to test civil defence organization and training in many of its branches, at the provincial, C.M.A.A. and municipal levels.[47]

By focussing on the exercise's success and significance to the world of civil defence, the report maintained the enthusiasm that was lost by the civilians and participants of the exercise. The evacuation involved the participation of 1,369 cars and 5,981 individuals.[48] These numbers were significantly lower than the initial estimation of 40,000 residents. The report optimistically noted the satisfactory level of participant cooperation: "Civil defence workers in the area [CMAA] were able to handle the volume received with very little trouble and could have handled many times the number," which was probably because they were expecting many times the number of individuals than the number which took part in the evacuation.[49] According to Randy Richmond and Tom Villemaire in their account of Operation "Lifesaver" in *Colossal Canadian Failures 2*:

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[45] *Report on Operation Lifesaver*, Introduction by Howsam.
[46] Ibid, 22.
[47] Ibid, "Statement of Purpose."

> Small town after small town reported disappointing numbers of evacuees. In Innisfail 336 people out of 84 cars showed up, out of an expected 3,500. "I think our 218 workers would be a lot happier … if more evacuees had shown up," said Frank Churchill, chairperson of the civil defence committee.[50]

Richmond and Villemaire went on to different communities and observed the disappointing lack of participants and the early departures of the Calgarians from the receiving communities well before the "all clear" signal which rang at 3:30 in the afternoon.

Sources such as the ACDHQ report indicated a concrete effort of civil defence organizations to remain optimistic. Such sources remain useful, however, in their plans to adamantly emphasize the cooperation of civilians and general homogeneity of the experiment's subjects. The primary concerns of the government lay within these optimistic reflections. Hints of the worries concerning civilian participation were evident in reports in that they were mentioned but quickly discarded. In the CBC documentary,

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[48] Ibid, 19.
[49] Ibid.
[50] Richmond and Villemaire, 95.

for instance, the announcer noted the level of non-participants in the project, commenting that some did not take part on account of highway conditions while others were out of town for the day. He continued to say, however, that regardless of these drawbacks, those who participated in the exercise were enough to make the project worthwhile. Another segment of the CBC coverage featured police officers patrolling the deserted streets: "… as an extra precaution the RCMP helped the city police patrol the streets for stragglers."[51] Following this statement was a scene featuring a police car pulling up beside a solitary man who was walking down the street. No narration followed as a tall red serge-clad RCMP officer stepped out of the car to talk to the "straggler." The civilian's lack of interest in the project, therefore, was briefly shown, mentioned in conjunction with the exercise's success, but never elaborated upon. While disinterest was present, reports and general coverage focussed on the positive and constructive aspects of the exercise.

The third part of the Operation "Lifesaver" report, titled "Lessons and Conclusions," discussed the learning experience through an evaluation and assessment of the successes and failures of Calgary and the receiving communities. The more beneficial lessons achieved through the practice illustrated the effectiveness of the Civil Defence Organization as well as the efficiency of a well-prepared public. Less successful were the lessons which illustrated the importance of traffic control and the warning systems. These problems, interestingly, were almost exclusively technological problems, although a few reports mentioned issues of public courtesy. The reports also mentioned the importance of capturing the interest and concerns of civilians: "Well planned and repeated publicity is a necessity to attract and hold public attention."[52]

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[51] "CBC Newsmagazine," clip 2, October 9, 1955.

Protests against civil defence, although present in society even as early as the mid 1950s, were relatively separate from the government records detailing the progress of civil defence programs.[53] The first wave of anti-nuclear protests in Canada occurred at the end of the 1940s and reached a peak in the early 1950s, following the "launching and consolidation of the Cold War in Canada."[54] The Canadian government during the 1950s basically prohibited anti-nuclear protests and peace movements. According to Whitaker and Marcuse in their study of Canadian Cold War culture and politics, "within certain sectors of Canadian society there were clear signs of a quasi-McCarthyite mentality that did not shrink from using extreme methods, including threats and occasional acts of violence, to intimidate dissenters."[55] The 1950s continued with a sense of disinterest in the nuclear bomb. Apathy is very different from protest – it is built upon the general disinterest and disregard for a subject rather than establishing its existence and power by working against it as with protest. In many ways, however, apathy and protest are related in that they show a lack of support for state imposed sanctions.

Some of the best evidence of such protests or critiques against civil defence measures was found in the subsequent critiques against the protests against *their* critiques. The *Civil Defence Circular*, a monthly Alberta newsletter, attacked Ernest Watkins's article in *Saturday Night Review*, "Civil Defence a Failure Until It Makes

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[52] *Report on Operation Lifesaver*, 21.

[53] The majority of anti-nuclear and anti-bomb protests took place in the second part of the Cold War, during the 1960s, and were often in conjunction with the anti-Vietnam War protests of the era.

[54] Reg Whitaker and Gary Marcuse, *Cold War Canada: The Making of a National Insecurity State, 1945-1957* (Toronto: University of Toronto Press, 1994), 364.

[55] Ibid.

Sense" published in April 1955:

> The main problem with this article was his claim with the explosion of a hydrogen bomb over Calgary, half of Alberta's population would wind up dead on account for various winds moving across the province. *CDC* [*Civil Defence Circular*] rights this exaggeration with the following facts: with the proper application of Civil Defence procedures citizens would be able to protect themselves from the bomb. Another point the newsletter addresses is the fact that Edmonton did not contain half of Alberta's population and that with the proper protection even the population of Edmonton would be saved: 'An ordinary basement – properly adapted – is a good protection and can cut radioactivity danger by as much as 90 per cent. A storm shelter, such as a deep root cellar, cave, etc., can give absolute protection.'[56]

The efforts to maintain a feeling of security from potential attack appeared once again through a persistence of the concept of controlled panic: there was a threat but it was manageable. Watkins's article apparently countered this view with a disturbing vision of a radioactive Alberta. The newsletter's effort to rectify the situation presented by Watkins's critique with the simple action of hiding in an "ordinary basement" was inaccurate but reminiscent of the role of propaganda and related attempts to address the apparent critiques to the civil defence program.

The postponement of the Calgary exercise by a week proved telling in terms of civil defence planning and organization. According to *Report on Operation Lifesaver*, the postponement of the exercise on account of weather illustrated the importance of preparation for all conditions in the event of attack:

> This in itself emphasized two points. Firstly, in any evacuation plan we must take into consideration the possibility of abnormal weather conditions existing at the time the plan is put into operation. Secondly, plans must be sufficiently flexible to allow the use of alternate roads and highways.[57]

This statement reinforced the prevailing desire to exclude the public in any possibility of risk, thus maintaining complete control over the situation, converting potential chaos into calculated reason. Operation "Lifesaver" catered to the desires of both the civilians and the planners. For civilians the exercise proved that in the event of attack, escape and survival was possible – the individual was in charge of his or her fate. For planners, the exercise was portrayed as a success and, despite the poor turn-out, the events went as anticipated.

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[56] *Civil Defence Circular* 5, no. 2, May 18, 1955, acc. no. 85.368.
[57] *Report on Operation Lifesaver*, 13.

Conclusion

Operation Lifesaver was an illustrative product of early Cold War mentality in Canada. The concerns for image, for prestige, and credibility drove the organization and planning of the Calgary evacuation, making the project symbolic of Cold War propaganda. Planners did not appear concerned with possibilities of subversion and Soviet infiltration: the exercise was widely publicised and the escape routes were clearly defined. The practice, therefore, was indicative of the overall nature of Cold War pride between the East and West, with its anxiety over obscure methods of possible subversion coupled with blatant efforts to show off innovations to the "other side." Operation "Lifesaver" was a small scale expression of western pride which was also evident in the American military tests in the South Pacific when the leaders of the East and West witnessed the explosions together. This method of challenging the other side with preparedness was the essence of the non-combative nature of the Cold War: unwilling to bomb each other, the two superpowers showed off their strength through military tests. In the same way, warfare was replaced in the citizen's mind with civil defence practices. This is not to say that there was no fear in terms of exercises like Operation "Lifesaver," but there was something driving the practices beyond simple civilian preparation for attack. There was civic pride. The exercise was perhaps initiated by fear or anxiety, but pride drove the success of the project making it more of an indication of strength than a method of creating an awareness of potential danger to the participating and observing civilians. Through Operation "Lifesaver" a western Canadian city showed North America that survival from a nuclear attack was not only possible but expected and planned.

The question remains however, what would Operation "Lifesaver" have been like if the exercise was not presented to the public as a practice but as the "real thing?" This would have been a "true" scientific experiment rather than a vehicle for propaganda. But that Operation "Lifesaver" was a well-ordered and carefully organized exercise, reflected the concerns of the civil defence organizations and Canadian government during the 1950s. The exercise's purpose was not to test the survival possibilities for civilians through evacuation, but to comfort civilians with the belief and evidence that survival in the face of the greatest destructive power on the planet was indeed possible. Operation "Lifesaver" makes little sense outside of the early Cold War context. It is now seen as a series of blunders and perhaps even farcical in terms of government information given to the public. The apparent loss of Operation "Lifesaver" in the Canadian memory cannot be solely explained by the postponement of the exercise and the subsequent lack of civilian interest but on the mindset of the early Cold War. Operation "Lifesaver" is an illustrative example of the Atomic Era indicating the government's anxieties and subsequent application of controlled panic on the Canadian civilian.

Conclusion

This thesis draws attention to Canada's particular Atomic Culture. Moving from the wide global and political Cold War perspective and narrowing the study to focus on the personal and domestic sphere, this thesis examines the psychological impact of the Cold War and its ambiguities on the Canadian individual. Through an examination of the civilian's positive and negative attitudes during the early Cold War, 1950s society and the military revealed the ubiquitous place of science and technology in culture. Canada, although through its own nuclear projects, contributed to Cold War military science and technology with the provision of resources, such as uranium, scientists, and soldiers. This level of contribution in itself established Canada's role in the Cold War as a "hidden" player. It also defined Canada's stance in the Cold War as a neighbour to the United States, both geographically and ideologically. Through its relationship with one of the Cold War superpowers Canada had little reason to assert its technological and military power, of which it had plenty. Often seen by Cold War politicians and historians as a background actor with infinite resources, Canada remained an integral participant to the Cold War.

On a domestic scale the Cold War's impact on the civilian mentality was a result of the interactions of a variety of actors within society: the government and policy makers, the civil defence organizations, and the media. These participants established the social norms and expectations for the individual or nuclear family and worked to create postwar society, or what has been referred to as the Canadian Cold War experience. This relationship between actors defined the nature of the Atomic Era's "commodification" of science. The interactions between authorities and culture producers "sold" the idea of the

Cold War and nuclear science, literally and figuratively, to the civilian both as an attractive commodity and as a threat to the West when possessed by the East. In this way the Cold War re-defined the term "Total War." Indeed should a nuclear war have broken out Total War would have maintained its original context: the complete destruction of the enemy through improved and modern technology, as mentioned in chapter one. In the "new" sense, the "Atomic Total War" dealt with the mindset or psychology of the individual. The civilian was to be mentally prepared to become a soldier in the event of a nuclear attack and in order for this to be a successful venture the civilian had to be completely involved with civil defence. Civil defence did not attract all civilians and so a manner of an "ideological Total War," or mass propaganda, worked its way through the authorities and cultural producers to the individual or nuclear family. The ideological Total War was political; the "real" North American was neither a communist nor anything that challenged the western ideal, from a patriotic immigrant, to a homosexual, to a social non-conformant. The Cold War propaganda worked to gain support of civilians in order to create an ideologically homogenous nation that would combat any threat to the "normal" or socially accepted manner of domestic life and comfort.

Politicians and government planners believed that the greatest threat to the nation was civilian apathy and disinterest. In addition to fear tactics, which illustrated the threat of communism in society or a nuclear attack on the environment, civil defence propaganda also worked to attract individuals through positive junctures illustrating the benefits of civil defence. Cold War propaganda maintained a careful balance between threat and survival when presenting nuclear dangers: science made nuclear war possible, but it also made survival possible. The maintenance of the positive image of the bomb in the civil defence literature and the related depictions of survival and protection methods against an attack contributed an element of comfort to Cold War propaganda.

One of the most important aspects of the ideological Total War was its ability to reach all members of society, particularly children. The civil defence manual was dependent on the reader's consumption of the image. The handbook illustrations worked to achieve a wide audience. A child, with limited literacy, could read the handbook, ingest the gravity of the Cold War situation through the pictures, or at least the importance of civil defence, and, ultimately, understand the need for a proper survival plan. Children, therefore, became important actors in the domestic Cold War. They did not just consume Atomic Culture through their A-Bomb toys, their Boy Scout activities, or even their entertainment sources, but also through the adult's world. It was up to the adult to build a fallout shelter and to prepare for evacuation, but the child's mentality was integral to the cultural desire to maintain a level of comfort, particularly with the threat of nuclear war on the literal and metaphorical horizon.

The 1955 Calgary evacuation exercise illustrated the importance of image (or propaganda, or ideological Total War) in physical form. The process of the civil defence operation and the planners' focus on image shaped the nature of the exercise. Operation "Lifesaver," based on the simple fact that it was conducted by a secondary city in a secondary country, also demonstrated how the Cold War was not simply an ideological disagreement between superpowers but a conflict that influenced the minds and concerns of civilians around the world. In this way, Operation "Lifesaver" brought the Cold War to the domestic and civilian level. Not many citizens participated in the event, thus underlining the concerns of policy makers, the government, and civil defence organizations for the lack of civilian support. The media was closely involved in the exercise and triumphantly portrayed the event as a success. Operation "Lifesaver" captured the essence of Atomic Culture through its focus on image and reliance on the event's "commodification" through media. The media, by portraying the exercise as a national event, and emphasizing the individual's ability to seek protection at his or her discretion, although the plan offered little other choice, catered to the capitalist ideology of the western world.

The level of speculation, anticipation, and fear among civilians has to be taken into consideration when studying the Cold War as a past event. The only physical enactment of the nuclear war came in the form of the civil defence exercises. Many elements of Atomic Culture have remained through the decades: films of the bomb tests and satellites, civil defence pamphlets, and even a couple early warning systems and bunkers which have not yet been dismantled provide physical reminders of the Cold War. The civil defence exercise, however, contributed to the Cold War memory with an additional element. The exercise contained the central Cold War components lacking from the other "souvenirs": the active civilian mentality, the anxiety, and, consequently and perhaps contradictorily, the faith in the methods of protection issued by the planning committees. As historian Tracy C. Davis stated, "[b]ecause people gathered to 'play out' these scenarios, something did occur."[268] In this way the civil defence exercise, a mere representation of an anticipated event during the 1950s, has become a historical event which embodies the era's imagination, fears, and expectations.

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[268] Tracy C. Davis, "Between History and Event: Rehearsing Nuclear War Survival" *The Drama Review* 46, 4 (Winter 2002), 26.

Finally, the most integral aspect of this study is the application of the term "Atomic Culture" to the Canadian context. Although numerous studies, histories, and analyses have been conducted on the Canadian Cold War experience, virtually none have used the term "Atomic Culture." Indeed the historians refer to the impact of this era on the individual, but rarely do historians fully examine the dichotomous nature of science and technology in the Canadian domestic context. When studying Canadian Cold War history it is easy to fall into the practice of comparing Canadian and American culture. Understandably this is a conceivable method of study and one which defines Canadian culture, particularly when the Canadian definition of national mentality and identity has so often relied on the distinction between the two nations. Although this method remains relevant, particularly in the early twenty-first century, it does not add to the course of Canadian historiography.

The Canadian Cold War experience has also been studied not in terms of Cold War subjects, for instance science and technology in society, but in terms of the Canadian consciousness or identity. Atomic Culture defines the multi-dimensional nature of the Cold War. The Cold War was not merely an ideological conflict between superpowers, as historians Iacovetta and Kinsman have expressed in their studies of Canadian postwar society. Consequently, Canadian society during the 1950s was more "militarized" than many historians allow, in the same way that the Cold War was "domesticated" through popular culture and children's toys. In defining Canadian Atomic Culture this study establishes the impact of the global war on the Canadian individual. Atomic Culture, therefore, further defines and explains the confusions and ambiguities of the early Cold War through science and technology in society.

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